realplayer® plus

REALPLAYER 7 PLUS USER MANUAL

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RealPlayer User Education team: Harold Gross (lead), Alison White, Jacquelin Vanderwood (artist). Assistance from Stina Lane-Cummings, Chris Glover, Marti McKenna, Kathy Pelish, Jay Slagle

RealNetworks, Inc.
2601 Elliott Avenue
Seattle, WA 98121 USA

Corporate Information, Servers, and Tools
http://www.realnetworks.com

Consumer Software and Content
http://www.real.com

Technical Support and Customer Service
http://service.real.com

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ABOUT THIS MANUAL

This manual has been created to supplement the Help that comes with your RealPlayer 7 Plus, not to replace it.

Chapters 1 through 3 are designed to help you get up and running quickly with your new software.

Chapters 4 and 5 go into detail about all of RealPlayer's features.

The explanations in Chapter 6: What is Streaming Media and How does it Work?, will make RealPlayer 7 Plus more understandable and help you to get more out of the product. It is included to help you understand streaming technology, the core of RealPlayer. Streaming is at the forefront of Web (Internet) development today and is recreating entertainment for tomorrow.

The remaining Chapters are reference sections to help you quickly find answers to common installation problems and pointers to other less obvious features (such as Appendix A: Keyboard Shortcuts on page 91).

RealPlayer 7 Plus has a number of short-cut or right-click menus for Windows users. This manual will not cover these specifically. Other specific Windows-only differences are mentioned as needed throughout this manual.

Document Conventions

Bold text indicates the names of commands, menu choices or buttons that you should select or click on your screen. **Bold** text may also indicate a URL (Internet address) that you can access through your browser.

Italics indicate new terms or ideas in this document.

`Monotype` indicates information that you must type in or that is displayed on your computer screen.

Points out features that were specially designed for RealPlayer 7 Plus users.

INSTALLING REALPLAYER 7 PLUS

Before you install RealPlayer 7 Plus, please take a moment to confirm that your computer meets the minimum system requirements.

System Requirements

PC (Windows based computer)

Minimal Computer

- 120MHz Intel Pentium processor or equivalent
- 16MB of RAM
- 14.4Kbps modem (audio only); 28.8Kbps modem (video)
- 16-bit sound card and speakers
- 65,000-color video display card (optional; required for video)
- Windows 95 operating system
- Internet connection and web browser

Recommended Computer

- 166MHz Intel Pentium processor or better
- 32MB or more of RAM
- 28.8Kbps or better modem
- 16-bit or better sound card and speakers
- 65,000-color or better video display card
- Windows 95, Windows 98, or Windows NT 4.0 with Service Pack 3
- Internet connection and web browser

Macintosh

Minimal Computer

- Mac OS 8.1 or later
- 32MB RAM
- Virtual Memory turned on, set to 64MB
- 604 PowerPC (200 MHz or better)
- 14.4Kbps modem (audio only); 28.8Kpbs modem (video) Internet Connection
- Browser support: Microsoft Internet Explorer 4.01 or later, Netscape 4.05 or later, AOL v4 or later

Recommended Computer

- Mac OS 8.5 or later
- 64MB RAM
- Virtual Memory turned on, set to 128MB
- G3 233 (or faster) PowerPC
- 28.8Kbps or better Internet Connection for both audio and video
- Browser support: Microsoft Internet Explorer 4.01 or later, Netscape 4.05 or later, AOL v4 or later

Windows 95/98 and Windows NT Installation

To install RealPlayer 7 Plus

1. Close any open applications or programs that are currently running.
2. Insert the RealPlayer 7 Plus CD-ROM into your CD-ROM or DVD drive.

If RealPlayer 7 Plus does not install automatically when you insert the CD into your CD-ROM or DVD drive, you can start the installation process manually.

1. Click **Start** to open your Start menu.
2. Click **Run**.
3. Type the letter for your CD-ROM or DVD drive and then type `setup.exe` (for example `D:\setup.exe`). The RealPlayer 7 Plus installation should

begin. Follow the instructions that appear on your screen. If you are not connected to the Internet during installation, RealPlayer 7 Plus will attempt to connect to your Internet Service Provider (ISP) in order to electronically register your new Player.

4. At the completion of the installation, you will be shown some of the new features of RealPlayer 7 Plus and your browser will automatically connect to a Welcome page that will help you get connected immediately to content as well as offer additional information about how to use your Player. If you did not connect to the Internet to electronically register your RealPlayer 7 Plus during the earlier portion of the install process, your browser will attempt to dial your Internet Service Provider (ISP) to make the connection at this time.

Macintosh Installation

To install RealPlayer 7 Plus

1. Double-click the RealPlayer 7 Plus Installer. The installation process will begin. Follow the instructions in each of the screens that follow.
2. When installation is complete, your web browser will launch and take you to a Welcome page that will help you get connected immediately to content as well as offer additional information about how to use your Player. If you did not connect to the Internet to electronically register your RealPlayer 7 Plus during the earlier portion of the install process, your browser will attempt to dial your Internet Service Provider (ISP) to make the connection at this time.

WHERE TO GO FOR HELP AND INFORMATION

RealNetworks wants your use of RealPlayer Plus to be as easy and trouble free as possible. However, everyone needs help sometimes.

Below are several resources to assist you in resolving any problems you encounter.

Help with Using RealPlayer 7 Plus

Your first source for assistance when you have a question should be this manual or your Help file. To access Help, select **Contents** from your RealPlayer **Help** menu.

If you don't find your answer in Help or in this manual, RealNetworks has several other resources available on the Web.

Tutorials:
RealNetworks has created several on-line streaming tutorials to help you learn about the features in your RealPlayer 7 Plus. To access these tutorials, select **On-line Tutorials** from your **Help** menu or any individual Tutorial from the Tutorials folder in My Favorites (see My Favorites on page 29).

Tips and Tricks
The new Real.com Message Service offers RealPlayer Tips and Tricks delivered directly to your RealPlayer 7 Plus. To turn on Tips and Tricks, go to the **Upgrade** tab of your RealPlayer Preferences. Click **Settings...** in the Real.com Product Flashes section and then check RealPlayer Plus Tips and Tricks. Learn more about RealPlayer messaging in Real.com Message Service on page 20.

Service and Support:
Service and Support is available to answer your otherwise unanswered technical support questions. Service and Support can be reached via the Internet at:

http://service.real.com

Customer Service

Customer Service:
Customer Service is available to help you with questions about your order, delivery, or payment.

Customer Service is available from 8am - 5pm (Pacific Time), Monday through Friday, toll-free in the United States and Canada at **888-768-3248.** Outside the United States and Canada, please dial **206-674-2650.**

You can also contact Customer Service via the Service and Support Web pages by going to:

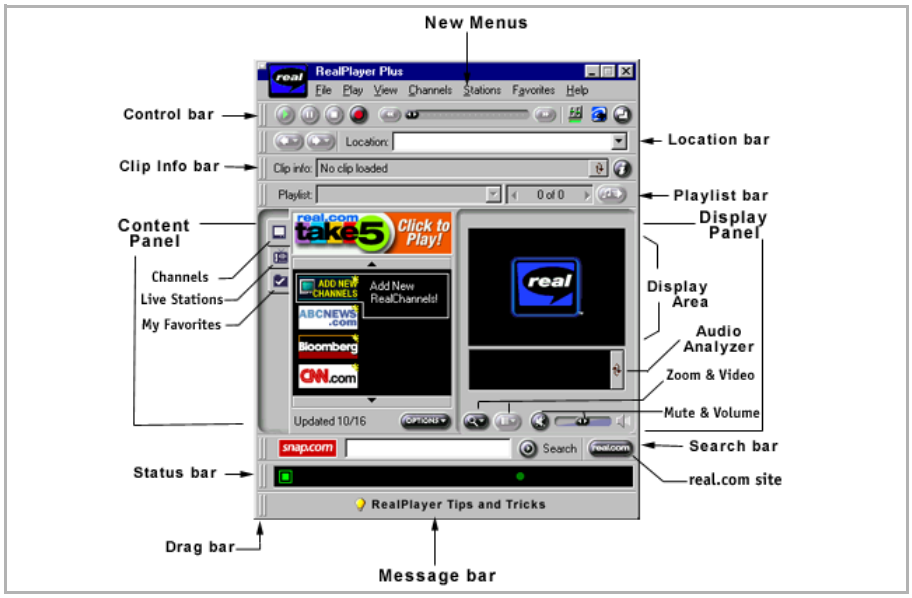
http://service.real.com

REALPLAYER 7 PLUS VISUAL GUIDE

The following is a visual quick reference for all the parts and buttons that are on your RealPlayer 7 Plus. Each of the specific areas is labeled in detail following Figure 3-1: RealPlayer 7 Plus. For more information about each of these features see Chapter 4: RealPlayer 7 Plus-The Basics and Chapter 5: The *Plus* in RealPlayer 7 Plus as well as your Help file available from your **Help** menu (select **Help** then **Contents...**).

Overview

Figure 3-1: RealPlayer 7 Plus



This view of RealPlayer Plus 7 has all of the bars and panels available from the **View** menu open.

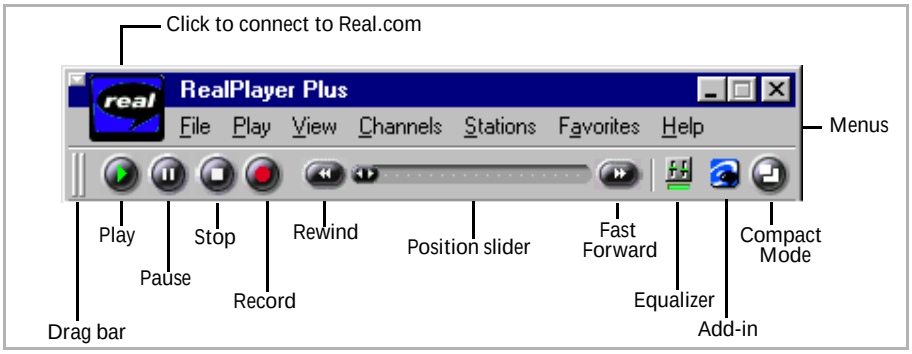
You can change the order of how these are stacked by using the *drag bar* to move any bar higher or lower in the stack.

Note

Macintosh users will notice several minor visual differences from Figure 3-1: RealPlayer 7 Plus.

Control bar and Equalizer

Figure 3-2: Control bar and Menus

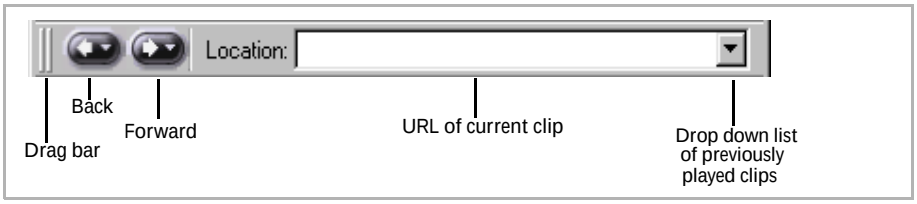


The **Control bar** allows you to navigate through the clip you are playing and gives you access to the **Equalizer**, **Compact mode** and any *add-ins* you may have installed (such as RealJukebox™ pictured above).

Learn more about how to use the Equalizer on page 32.

Location bar

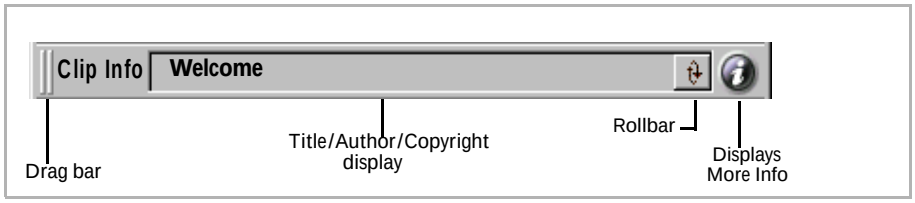
Figure 3-3: Location bar



The **Location bar** displays the *URL*, or address, of the currently loaded clip; this is similar to the address bar in your Web browser. Use **Back** and **Forward** to jump back and forth between the clips you were playing, also similar to your Web browser.

Clip Info bar

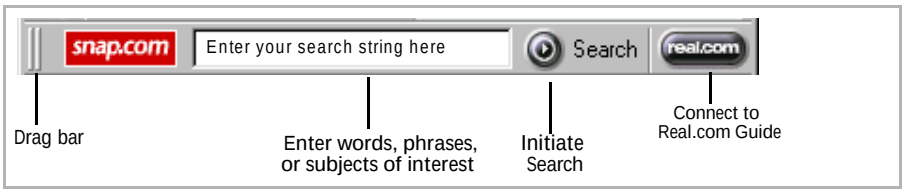
Figure 3-4: Clip Info bar



The **Clip Info bar** displays information about the currently loaded clip. By clicking the **rollbar** you can make the information scroll past again. Clicking **More Info** opens a dialog with additional information if the content provider has supplied any.

Search bar

Figure 3-5: Search bar



Use **Search** to find content on subjects you are interested in playing. Just type in words or phrases as you would to search for a Web page and click **Search**.

Search will contact the Internet, look for clips that meet your **Search** criteria, and display a list of audio, video and other media clips in your browser. Just click on any of the resulting titles to listen to a clip.

For information on Real.com Guide see Search bar on page 23.

Content Panel

The **Content panel** offers three views to help organize and access media on the Web. The first two tabs offer immediate access to new streamed content. You can add to your Channels or update your Stations whenever you like.

Quick access to streamed content

Figure 3-6: Channels

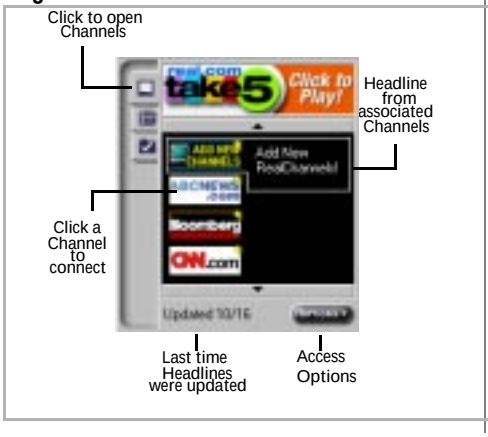
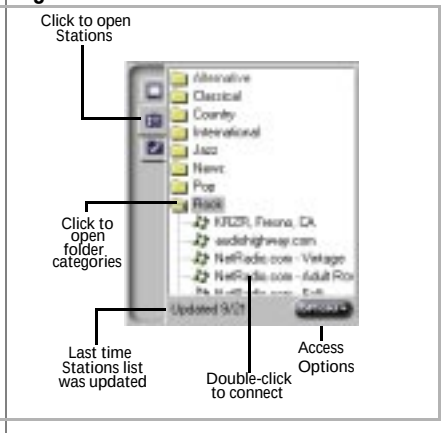

Click to open Channels
Headline from associated Channels
Click a Channel to connect
Last time Headlines were updated
Access Options

Figure 3-7: Live Stations

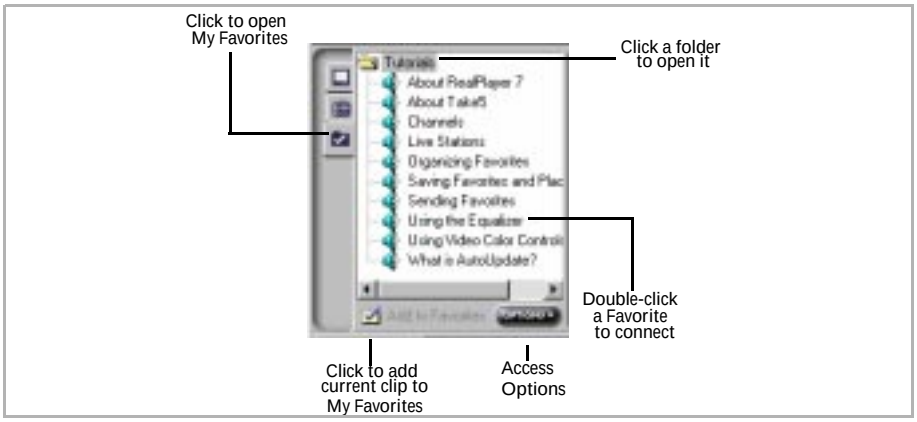

Click to open Stations
Click to open folder categories
Last time Stations list was updated
Double-click to connect
Access Options

Channels and Live Stations offer a variety of content that is updated frequently. See also Channels on page 17 and Live Stations on page 21.

When you come across content that you want to come back to often, then you can use My Favorites (see below) to bookmark the location.

Quick access to bookmarked content

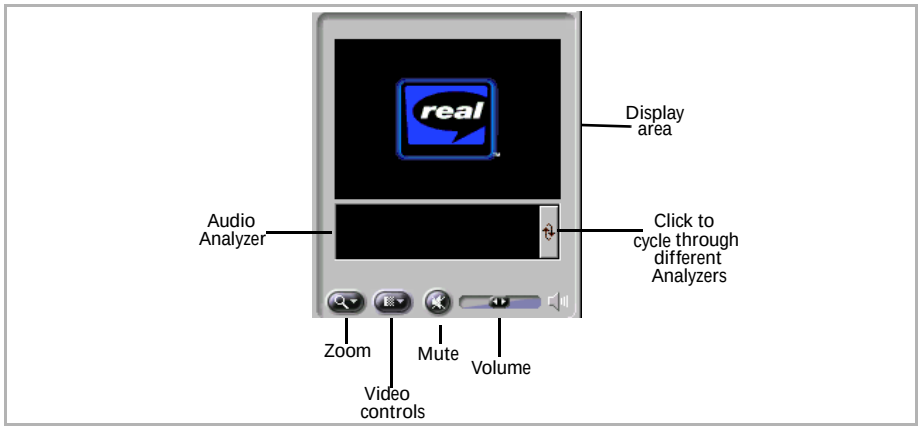
Figure 3-8: My Favorites


Click to open My Favorites
Click a folder to open it
Double-click a Favorite to connect
Click to add current clip to My Favorites
Access Options

Favorites are similar to bookmarks. You can add, change or even send Favorites to friends and co-workers. See My Favorites on page 29.

Display panel and Audio Analyzer

Figure 3-9: Display panel

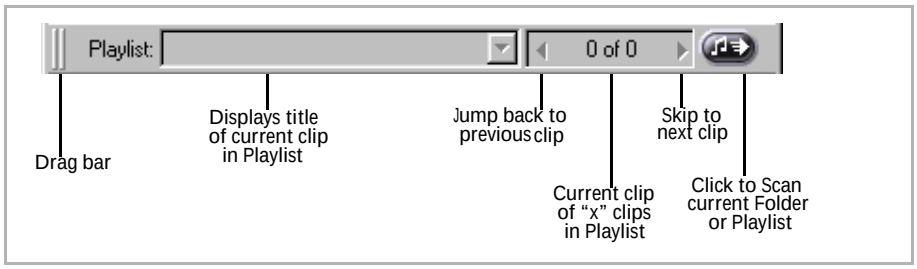


The **Display panel** is where any visual aspects of a clip will be shown. It also hosts the **Audio Analyzer**, **Video Controls**, **Zoom**, **Mute**, and **Volume** controls.

Learn more about the Audio Analyzer on page 34 and Video Controls on page 35. More can be found about Zoom in Resizing on page 27.

Playlist bar

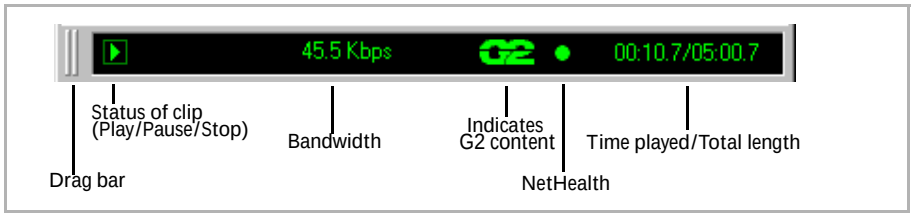
Figure 3-10:Playlist bar


Playlist:
0 of 0
Drag bar
Displays title of current clip in Playlist
Jump back to previous clip
Skip to next clip
Current clip of "x" clips in Playlist
Click to Scan current Folder or Playlist

The **Playlist bar** will not open automatically unless you are playing a *multi-clip* (a clip that contains other clips in sequence). To open it at other times, use the View menu (**View/Playlist**). See also Playlist bar on page 26 and Scanning on page 26.

Status bar

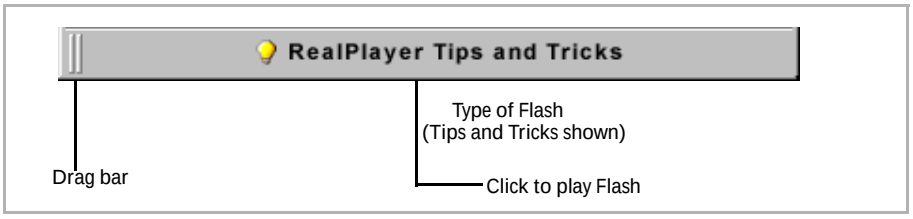
Figure 3-11:Status bar



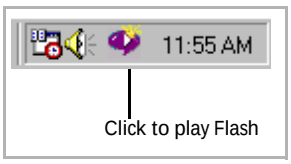
The **Status bar** gives you quick answers about your current connection and the actual length of the clip you are playing. If you are connected to a *live* feed (such as a radio station that is currently broadcasting) the word “Live” will appear instead of a time. More detailed information about the **Status bar** is available in your Help file (**Help/Contents...**).

Message bar

Figure 3-12:Message bar



The **Message bar** only appears if you have received a Flash from the Real.com Message Service. Flashes come in many categories and only arrive if you elect to receive them. To play the message, click the message type (**RealPlayer Tips and Tricks** above). Change which Flashes you receive in your RealPlayer Preferences (see Content Preferences on page 63 and Upgrade Preferences on page 65).



Windows owners may also see Flashes from the Real.com Message Service appear as an icon in your Windows Tool Tray which is where you see the time displayed (shown to the left). Clicking the icon will launch the message. If you have StartCenter running, your Player icon will Flash or have a gleam on it.

Learn more about the Real.com Message Service on page 20.

REALPLAYER 7 PLUS-THE BASICS

With every new version of RealPlayer Plus, RealNetworks tries to improve your experience, not only in what you hear and see, but also in how you use the program. RealPlayer 7 Plus has several new features and a completely new interface (buttons, windows, menus, etc.). This chapter will guide you through the basics of your RealPlayer, the features that have helped make RealPlayer one of the most popular Internet tools in the world.

Additional Information

For more information about any of these features check out your Help file. There are also **On-line Tutorials** available from your Help menu that stream short tutorials to your RealPlayer.

So now I have this software, what do I do with it?

RealPlayer 7 Plus gives you access to multimedia both on the Internet and locally on your computer. With RealPlayer 7 Plus you can find and play Channels and Live Stations directly without having to launch your browser first. My Favorites, and Scanning (all described below) let you organize and search for *clips* directly more easily than before.

Note

Clip is a catch-all phrase to describe anything your Player plays. A clip can be video, audio, video with audio, RealText, RealPix, RealG2 with Flash animation, any combination of these, or something else completely different.

Some clips contain more than one song or video; these are called *multi-clips.* A *multi-clip* strings together several

individual clips of content, but you only have to click on it a single time to hear or see all of the media associated with that clip.

Many ways to play a clip

There are two very different ways to listen to media on your computer. The first is *local playback*. Local playback is when you use the **Open File...** option from your RealPlayer 7 Plus **File** menu.

Streamed content, is any clip that is played over a network, whether the Internet or your company network. Before you can play a clip on the Internet you have to connect to it. You can connect to streamed content by clicking on links in a web page, using the **Open Location...** option from your RealPlayer 7 Plus **File** menu or by using the newest options RealPlayer Plus has to offer to on the Content panel: Channels, Live Stations, and Scanning.

Note

For a complete discussion of streaming media and the Internet, please see Chapter 6: What is Streaming Media and How does it Work? on page 39.

Navigating through a clip

When you start playing a clip, you have *loaded* it. A clip remains loaded until you select a new clip. *Loading a clip* means either that you are connected to it or that it was the last clip you were listening to during the current *session* of RealPlayer 7 Plus. A session starts when you launch RealPlayer and ends when you close it. Stopping a clip does not unload it. Stopping a clip just resets it to play from the beginning. However, just because a clip is loaded does not mean you are necessarily connected to the Internet. Loading a clip only means that your Player knows where to look for it and what clip it should work with when you click any of the control buttons (see table on next page).

Navigation

Button	Action
	Play starts a clip from the beginning or from where you paused it.
	Pause freezes playback of the clip. If you pause a clip for several minutes, you may be disconnected from the clip. When you resume playback there may be a delay while RealPlayer reconnects to the site.
	Stop halts playback and resets the clip to the beginning.
	The **Position Slider** indicates where you are in the clip. Dragging the slider to a new position will let you jump around a large clip—watch the time indicator on your Status bar for your location.
	The longer you hold down **Fast Forward**, the further ahead in the clip you will jump.
	The longer you hold down **Rewind**, the further back in the clip you will jump.

What if I am disconnected from my Internet Service Provider (ISP)?

If you are not connected to the Internet and attempt to play a loaded clip, RealPlayer 7 Plus will try to establish a connection for you. In most cases on, a Windows PC, this means you will see the Dial-up Connection dialog that you see when you launch your browser or get your e-mail. For a Macintosh, most often, you will be reconnected automatically. In both cases, if you do not automatically reconnect to the Internet, simply connect manually and try to play the clip again.

Channels

Channels give you one-click access to rich content that is updated on a frequent basis. All take advantage of the new SMIL format which offers a richer experience by using multiple types of streams at once (see SMIL on page 52).

Click the Channels tab to change the view on your Content Panel (see also Figure 3-6: Channels on page 12).

Figure 4-1: Channels

Channels are similar to Live Stations on page 21 in that they provide access to content. Channels, though, have additional special conveniences and abilities.

One advantage of Channels is that they provide you with up-to-date headlines from all of your selected Channels while you're connected to the Internet. The headlines appear to the right of the Channels icons. Updates occur automatically only while you are connected to the Internet.

When Content for a Channel has changed you'll see a gleam appear on the Channel; you won't have to play the Channel to find out if there's something new (see Channels gleam on page 20).

Tip

You can force a headline update to occur ahead of its next scheduled time by selecting **Update headline now...** from the **Options** menu. If you are not connected to the Internet, your Player will attempt to connect to your ISP when you click **Update headlines now...** To turn off automatic updating see Content Preferences on page 63.

Your RealPlayer Plus comes loaded with a starter set of Channels but you can change these at any time by clicking **Add New Channels** to add more. In fact, RealNetworks is always working to supply you with new options, so check regularly to see what new Channels are available.

To Change or Add to Your Channels

1. Click the Channel titled: **Add New Channels**.
2. A presentation about new Channels and other related information will be streamed to your RealPlayer 7 Plus from RealNetworks and your browser will connect to the Channels selection page.

3. Follow the instructions on the Channels page to change your lineup. Channels are available for a variety of interests: News, Entertainment, Sports, and others.
4. Click **Finish** on the Channels page to have your selections take effect.

Real.com Take5

Figure 4-2: Channels tab

Real.com Take5 is a special Channel created by RealNetworks to bring you the best of the web: a daily showcase of the top entertainment, music, news and specialty programming on the Internet. Real.com Take5 is available only through the new RealPlayer 7.

A single click on the Channel starts the program. You'll see a quick intro of each of the available stories as well as a list of other categories you can access. Every day, editors at RealNetworks comb the Net and contact partners to find the best and most informative content just for you.

Additional Information

Real.com Take5 is a SMIL presentation (see SMIL on page 52) that combines RealG2 with Flash, RealText, RealPix and RealAudio, all synchronized in the same presentation within RealPlayer. Take5 is designed to give you a good experience even over slower dial-up connections (such as when using a 28.8 modem).

Real.com Take5 takes advantage of other new RealPlayer features such as *multi-instance* (multiple Player windows) and file caching. Multi-instance allows you to view a video clip in a new window and not lose your place in the main Take5 window—substantially reducing the need to reload pages. In fact, when pages are reloaded, some of the components on the page are retrieved from Clip Cache (see Performance Preferences on page 74), speeding performance.

Take5 has a dedicated team in RealNetworks working to bring you stories from around the Web making Take5 one of the best places to be on the Web every day.

Channels gleam

Figure 4-3: Channels tab with gleam

Channels have been enhanced in RealPlayer 7 to let you know when there's something new to watch. A gleam will appear on the channel (shown to the left).

To see when your Channels were last updated, see the date or time next to **Options**. To update manually, click **Options** and select **Update Headlines Now**...

Real.com Message Service

RealPlayer can now keep you informed about events and information in several categories with the Real.com Message Service.

The Real.com Message Service is actually two services delivering different types of information: **Real.com News and Entertainment Flashes** and **Real.com Product Flashes**. You can choose to subscribe to either or both services when you install RealPlayer 7 Plus or change your subscriptions later in Preferences.

Real.com News and Entertainment Flashes

News and Entertainment Flashes alert you to breaking news and live concert events. You can change your subscription options in your Preferences (see Content Preferences on page 63).

Real.com Product Flashes

Product Flashes deliver RealPlayer Tips and Tricks and special offers from RealNetworks. You can change your subscription options in your Preferences (see Upgrade Preferences on page 65).

How do you know when you have received a Flash?

When you've received a Flash, RealPlayer will let you know in one of two ways:

1. The RealPlayer icon in your Windows System Tray will glimmer. You change how this looks on the appropriate Preferences tab depending on the services you've selected. Click the icon in your Tool Tray to see the new Flash.

The Windows Tool Tray is where you see the time displayed (shown to the left).

2. A Message bar will appear in your Player (see Figure 3-12: Message bar on page 14). The bar will let you know what sort of Flash you've received. For instance, if you see a light bulb with the words such as **RealPlayer Tips and Tricks** after it, you've received a Flash with information about how to use one of the many features of your Player. Just click the Message bar to see the new Flash.

Flashes will not interfere with your listening or viewing experience. You choose when to watch the Flash after it has arrived.

Live Stations

The Live Stations tab is built-in, one-stop shopping for Internet radio. RealPlayer comes stocked with over 100 stations pre-installed. As different Live Stations become available, RealNetworks will update your list automatically.

Click the Live Stations tab to change the view on your Content Panel (see also Figure 3-7: Live Stations on page 12).

Figure 4-4: Live Stations

RealNetworks automatically updates your Live Stations list so you always have the most accurate list possible of available content out on the Web.

Just double-click to open a folder that interests you then double-click the Station you wish to play.

For information about scanning Live Stations see the Playlist bar on page 26.

Live Stations offers you a current list of radio stations that are broadcasting on the Internet. Just like Channels, Live Stations are periodically refreshed with up-to-date information.

To Play a Station

1. Open a category, or genre, of music by double-clicking the folder that interests you.
2. Double-click the Station you wish to play or select the Station with a single click and then choose **Play Live Station** from the **Options** menu.

To Find a Station

Because RealNetworks gives you so many Stations to choose from in your Player, we've given you several ways to make finding what you want easier.

Sorting the whole list

1. With the Live Stations tab open, click **Options**.
2. Select **Sort Stations**.
3. Choose how you would like your Stations List to be sorted (for example, by country of origin).

Additional Information

There are also more complex searches available. For example, the sort **Genre/Country** will sort the Stations list first by the Genre, or type, of music and then by the Country from which each Station is broadcast. So under each Genre folder you will see a folder for each Country. In each Country folder will be the list of Stations for that Genre.

Finding a Specific Station in RealPlayer 7

If you know the call letters (for example, KWPR) for a Station that you want to find or simply just want to find a Station based on its properties, you can use **Find**.

1. With the Live Stations tab open, click **Options**.
2. Select **Find...**
3. Type your search criteria in the **Search for:** box ("KWPR" in the example above).

4. Select to search only the Station titles (such as call letters) or all properties of the stations. Every Station has four searchable properties: country, language, bitrate, and genre.

   Additional Information

   To see the properties of any individual station, right-click the Station and select **Properties**.

5. Click **Find Next**. RealPlayer will search all the Stations it currently has available in the **Live Stations** tab.

   Warning

   RealPlayer will search down in your Live Stations tab to the first Station that matches your criteria. If you want to search the whole list, highlight the top folder in your list before starting your search.

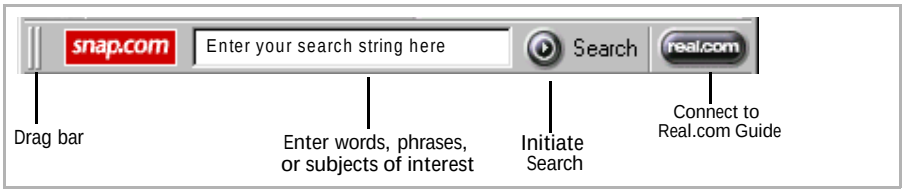
6. When you come to a Station you want to listen to, double-click the Station to connect to it.

   Tip

   Not sure you have the latest Live Stations list? Update your list manually by clicking **Update Stations list** on the **Options** menu of the Live Stations tab.

Search bar

Figure 4-5: Search bar



Use **Search** just as you would to search for a Web page. Just type in words or phrases to find content on subjects you are interested in playing and then click **Search**.

Search will contact the Internet and look for clips that meet your **Search** criteria. The list of audio, video and other media clips it creates will be

displayed in your browser. Just click on any of the resulting titles to listen to a clip.

Located on the right of your Search bar is the **real.com** button which will take you directly to the *Real.com Guide*, the most comprehensive media hub for free Internet audio and video software and programming. Find programming featured on the Internet and play it with one click. Choose from a comprehensive listing of downloadable music from Listen.com, personal calendars and access to premiere programming. More than 2,000 radio and television stations, 8,000 Web sites and 500 daily live events are offered.

Sharing Favorites

RealPlayer 7 Plus allows you to share Favorites with other RealPlayer G2 and RealPlayer 7 owners. Sharing is accomplished through the use of *Exporting* and *Importing* Favorites.

To Export a Favorite

1. Select **Organize Favorites...** from the **Options** menu on your My Favorites tab.
2. Click **Export** *Favorite* or **Export** *Folder* (depending on what you have selected in the Organize Favorites dialog).

   The **Export Favorites** dialog will open.
3. Select a place on your hard disk to save the Favorite or folder of Favorites (also called a Favorites Pack) and give it a name.
4. Click **Save**. The file will be created with an .RNX *extension*.
5. E-mail the file to your friends. (The file should be mailed as a simple text file if you need to designate "file-type" in your mail program.)

Tip

If you want to quickly Export an entire Folder of Favorites, just select **Export** *foldername* from the **Options** menu on your My Favorites tab.

To Import a single Favorite or folder of Favorites (also called a Favorites Pack)

1. Select **Import** from your Favorites menu.
2. An **Import Favorite** dialog will open.

3. Browse as you would with your Windows Explorer to where your mail program downloads files and select the Favorite to be imported (it will have an .RNX extension).
4. Click **Open**.
5. The Favorite will appear in your RealPlayer 7 Plus.

Additional Information

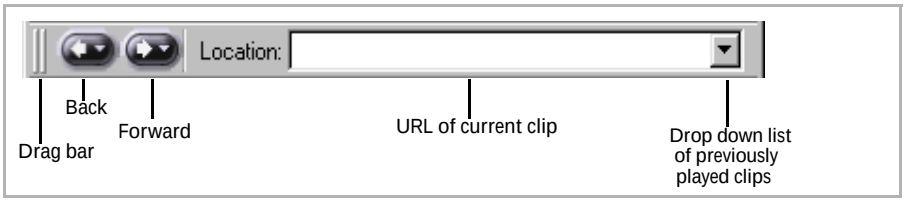
In the case of an individual Favorite you may find a new folder that matches the one it was exported from.

Importing Favorites will not overwrite your existing Favorites, even if they have the same names or Folder names. Instead, same named Favorites will appear in your Player but may connect to different clips.

Location bar

The **Location bar** displays the *URL*, or address, of the currently loaded clip similar to the address bar in your Web browser and gives you browser-like control of your Player.

Figure 4-6: Location bar



The drop down **Location list** keeps track of the last 20 addresses you visited with your RealPlayer, even between *sessions*. A session starts when you launch RealPlayer and ends when you close it.

Back and **Forward** allow you to jump back and forth between the clips you were playing, also similar to your Web browser.

Playlist bar

The Playlist bar not only allows you to navigate *multi-clips* (a clip that contains other clips in sequence) it is also now equipped to Scan your Stations and Favorites.

Figure 4-7: Playlist bar

The **Playlist bar** will not open automatically unless you are playing a multi-clip. To open it at other times, use the View menu (**View/Playlist**).

Scanning

You may not always know exactly what you're in the mood to listen to or you may not be sure exactly what type of programming a Station carries. To help, RealPlayer 7 Plus has the ability to **Scan Stations** or to **Scan Favorites** so you can find the clips that interest you. The process is similar to using the scan feature of a car radio or stereo.

Scan Stations

RealPlayer Plus will Scan all of the Stations in the folder that is currently selected. Each clip will play for the time specified in your Preferences (see the Scan Time field in General Preferences on page 60).

1. Open the **Live Stations tab**.
2. Select a folder by clicking on it once.
3. Open the Playlist bar (**View/Playlist**).
4. Click **Options** on your Stations tab and select **Scan Stations in** *'folder'*.

When you find a Station that you want to continue listening to, click **Scan** on the Playlist bar again (turning it off) and the Station will continue playing without moving on to the next.

Scan Favorites

Scan Favorites is similar to Scan Stations but rather than scanning your existing Stations, Scan Favorites plays a small part of each Favorite in the selected folder.

When you find a Favorite that you want to continue listening to, click **Scan** on the Playlist bar again (turning it off) and that Favorite will continue to play without moving on to the next.

Resizing

RealPlayer 7 Plus is now manually resizable. Just hover your mouse over any corner or edge of RealPlayer, click, hold and drag to the size you would like to use.

To return to a specific size, use the **Zoom** control (see Figure 3-9: Display panel on page 13) or the Zoom menu item (**View/Zoom**) to select **Original** or **Double** size.

Warning

Macintosh users will only be able to resize from the bottom, right corner of their RealPlayer 7 Plus and will only see the familiar single-arrowed cursor.

THE *PLUS* IN REALPLAYER 7 PLUS

RealPlayer 7 Plus has several features not available in the Basic version of the program to improve your entertainment experience. This chapter will describe the features that make your RealPlayer Plus special.

Additional Information

For more information about any of these features check out your Help file. There are also **On-line Tutorials** available from your Help menu that stream short tutorials to your RealPlayer.

My Favorites

Click the My Favorites tab to change the view on your Content Panel (see also Figure 3-8: My Favorites on page 12). My Favorites is the quickest and most convenient way to access your Favorites.

Figure 5-1: My Favorites

My Favorites is organized by categories. Some categories have been created for you, but you can change or add to them in **Organize Favorites** (see Organizing Favorites below).

To change categories of Favorites

1. Double-click on the title of the desired category (for example “Tutorials” in Figure 5-1: My Favorites).

2. The folder will open and display all the Favorites filed in it.

3. To listen to a Favorite, just double-click its name.

The **Options** menu gives you access to **Organize Favorites** and **Add Favorites** to other categories (below) as well as the ability to **Export/Import** (see Sharing Favorites on page 24) and **Scan** (see Playlist bar on page 26).

Note

If the clip you select is not located on your computer and you aren't connected to the Internet either directly via a modem or indirectly via a local area network, RealPlayer Plus will first attempt to establish a connection for you. The connection process is no different than any other time you connect to the Internet to look at Web pages except that your browser won't open. The clip will start to play automatically after RealPlayer Plus finds it.

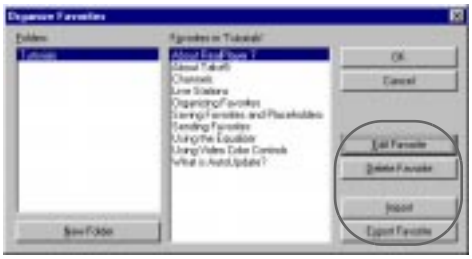
Add To Favorites

To add the currently loaded clip to your Favorites click **Add to Favorites** on your My Favorites tab. The Favorite will be added to both your My Favorites tab and your Favorites menu.

Organizing Favorites

Favorites can be organized to fit your own needs and sensibilities. To open the **Organize Favorites** dialog, select **Organize Favorites** from the **Options** menu of **My Favorites.**

Figure 5-2: Organize Favorites dialog



To change the name of a Favorite or Favorite's Folder or to change which Folder a Favorite resides in, you need to edit that Favorite or Folder.

Depending on what you have selected, a Folder or Favorite, the buttons on the right of the dialog will change.

To Edit a Favorite or Folder

1. Select the Favorite or Folder.

2. Click **Edit Favorite** or **Edit Folder** (the buttons will change depending on which you have selected).

Figure 5-3: Edit Favorite dialog

If you edit a Folder, you will only be able to change its name. If you edit a Favorite, you have a few more options (see Figure 5-3).

1. Select a new Folder or change the Title, URL, or beginning position of the clip.

2. Click **OK.**

Save Current Place

Save Current Place is a special form of Favorite that allows you to quickly save where you are in a clip so you can access the clip at a later time from the same place.

1. While listening to a clip, select **Save Current Place...** from your **File** menu.
2. An **Add To Favorites...** dialog will open with the **Begin at Position** information selected for the moment that you chose to save.
3. Select a Folder in which to save the placeholder.
4. Click **OK**.
5. When you select the Favorite, the clip will start from the position it was in when you selected **Save Current Place...**

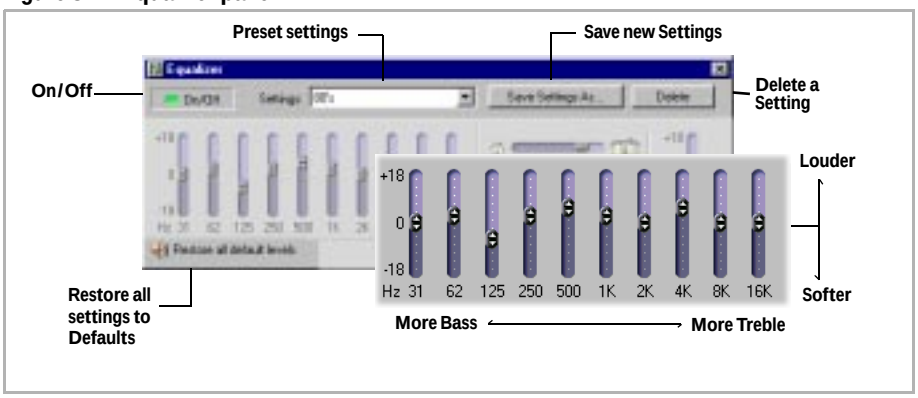
Additional Information

Save Current Place... will not be available if a clip is not capable of being searched (using fast-forward or rewind). For example, you cannot use **Save Current Place...** during a live broadcast or with a Wave (.wav) file.

Equalizer

The Equalizer is your central control for customized audio. It allows you to adjust small ranges of tones in order to improve the quality of the sound. In RealPlayer 7 Plus we have enhanced the Equalizer to help make your listening experience more individualized than ever.

Figure 5-4: Equalizer panel



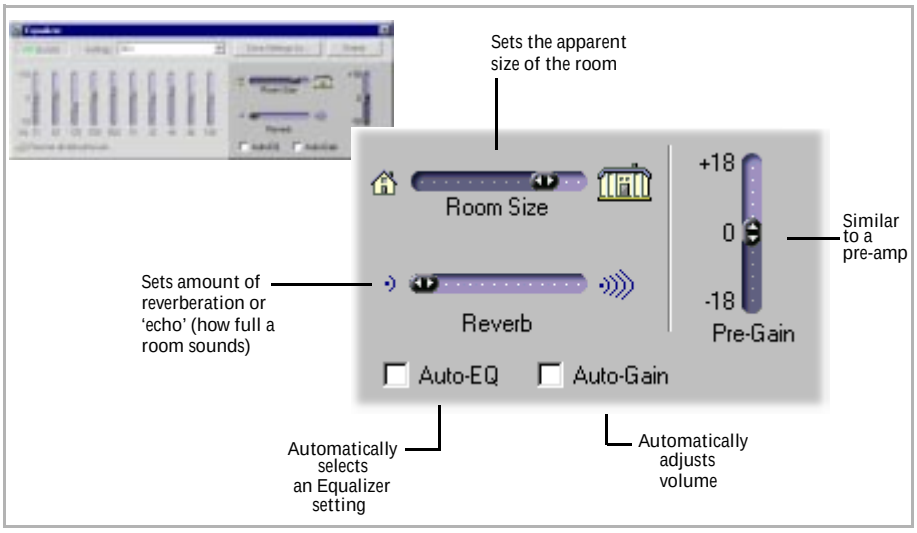
Click the **Equalizer** accessory button on the Control bar to open the Equalizer (seeFigure 3-2: Control bar and Menus on page 10). You can also open your Equalizer by selecting **View/Equalizer** from your menus.

An Equalizer gives you extra-fine control over your listening experience. With most stereos you only have control over two broad spectrums of sound: Bass and Treble. The RealPlayer 7 Plus **Equalizer** breaks this into 10 distinct bandwidths for finer control.

You can adjust each band of sound manually or choose from pre-configured settings in the **Settings** drop down list. Your Equalizer will not affect your sound quality until you click **On/Off**. A green light beneath the button on the Control bar indicates that the Equalizer is on, a red light indicates that it is off.

Once you find the right positions, you can save them by clicking **Save Settings As...** and giving the setting a name. Keep in mind that different types of sounds (music or voice) may require different Equalizer settings. This is why your RealPlayer Plus already has a number of preconfigured **Settings** as a part of the Equalizer. Learn more about the other controls (such as Pre-Gain and Reverb) on the next page.

Figure 5-5: Equalizer F/X



Room Size and Reverb

Room Size and Reverb together adjust sound so it takes on the qualities of a live concert. You can adjust the virtual size of the room using **Room Size** and then fill it with an audience using **Reverb**. More Reverb translates to an emptier room, less reverb to a more full room.

Pre-Gain

Pre-Gain is similar to a pre-amp on a stereo. Each clip you listen to is prepared for streaming, or encoded, by different people. This is similar to the effect you get from different CDs or tapes where recording volumes are different; you have to adjust the volume to hear the sound more clearly. In some cases this means turning down the gain or in others, turning it up. Pre-Gain pumps up or diminishes all the sound levels before they play over your sound system. You can then fine tune the volume with your RealPlayer Volume control or your speaker controls (see also **Auto-Gain** below).

Auto-EQ and Auto-Gain

Auto-EQ selects the settings most likely to enhance the audio you are listening to. This option is unavailable if your Equalizer is turned off.

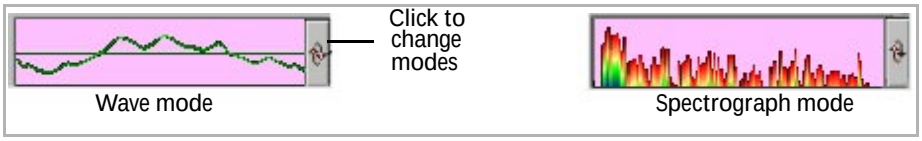
Auto-Gain normalizes the sound so that all clips you play will have roughly the same volume regardless of how they were recorded or how they are being broadcast. Auto-Gain most useful for news, where anchors and interviewers speak at a variety of volume levels, and less dynamic music.

Tip

Auto-Gain should be used carefully. The feature will tend to flatten out very dynamic music, such as Classical, by increasing the volume of quiet moments and lowering the volume of loud moments, essentially altering the experience.

Audio Analyzer

Figure 5-6: Audio Analyzer in two different modes



The Audio Analyzer gives you four visual representations of the sound you are hearing. Wave, Spectrograph (as seen above), Bar Graph, and Spectrogram. You can cycle through the different modes by clicking the **rollbar**.

Why would you want to see what you're hearing? The main reason is practical: you can use what you see to help you adjust the sound with your Equalizer. When you adjust the Equalizer, you will see a corresponding change in the *peaks* and *troughs* on your analyzer.

Using the Equalizer and the Analyzer together can be very powerful. The Bar Graph and Spectrograph modes are the best to work with for accurately seeing how your changes in the Equalizer are affecting your sound quality.

The **Bar Graph** and **Spectrograph** *modes* are similar in that they indicate the level of each frequency (each narrow band of sound) by showing you a column of light. The Bar Graph has 16 indictor bars (the columns of light that jump up and down on the Analyzer screen) while the Spectrograph has over 100. Which you use depends entirely upon your own preference.

There are many more indictor bars on both of these modes of the Analyzer than there are sliders on the Equalizer but the same overall range of frequencies are shown (from Bass to Treble, left to right). Because of this direct relationship, adjustments on the Equalizer will be more obvious in Bar Graph mode, for instance, than they will be in Wave mode.

Wave mode does show your frequency range, but in a vertical format to show the frequency change from a zero mark that runs horizontally across the center. Essentially, it shows how high the levels are for each frequency. *Level* is

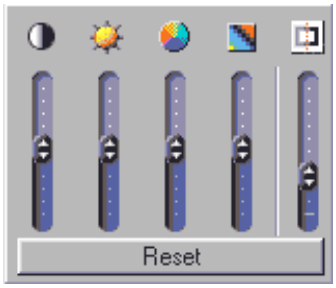
how loud or soft the frequency is. The Wave mode will be affected by the changes you make in the Equalizer, but reading it does require a little more practice. However, if you notice most of the peaks are very high (hitting the top and bottom of the Analyzer), you are probably going to experience clipping and distortion in your sound. Adjusting the frequencies that seem overpowering can correct this problem.

Spectrogram mode is a special Analyzer that displays an aggregate of the sound (the total effect of all frequencies of the sound at any point in time) in small slices that move left to right.

Video Controls

Click the accessory button on the Display Panel to open the Video Controls. These controls adjust the Contrast, Brightness, Color Level, Tint, and Sharpness in your Display panel *without* having to affect the rest of your screen. (See also Figure 3-9: Display panel on page 13.)

Figure 5-7: Video Controls



1. Click, hold, and drag any of the sliders to a new setting. Watch the Display area to see the changes.

2. Click anywhere else on your screen or Player. The Video Controls box will close.

Any settings you pick will remain until you change them.

- **Contrast:** The visual difference between dark and light colors.
- **Brightness:** The overall amount of light in a picture.
- **Color Level:** The intensity of the colors on your screen.
- **Tint:** The amount of Red, Blue, or Green in the picture.
- **Sharpness:** How defined the edges are in the picture.

No two computer systems are exactly the same, nor are any two computer users. While content providers (the people who put the clips out there on the Internet for you to watch) can adapt their clips to be viewed at different bandwidths (see SureStream on page 50) they can't adjust specifics of the picture, such as brightness, for each individual computer that might watch their clip.

Video Controls will not be available if the loaded clip cannot be adjusted with the Video Controls.

PerfectPlay

PerfectPlay is the only way to guarantee that you will receive the highest quality stream (the highest bitrate) possible.

What is PerfectPlay?

PerfectPlay doesn't just buffer more of the clip before playing it for you, it actually adjusts the communication between your RealPlayer Plus and the RealServer™ that is sending you the clip. These adjustments allow for little or no loss of data. The result is a more complete media experience.

When should you use PerfectPlay?

Use PerfectPlay when you have a particularly bad connection or if you are finding that your video or audio is breaking up even with RealPlayer Plus working hard to adjust to your connection. When PerfectPlay is turned on, it may take considerably longer to buffer before playing the clip you've selected, but your experience will be greatly improved.

Note
PerfectPlay is not available for live feeds.

How do you start PerfectPlay?

1. Before playing the clip, select **Play/PerfectPlay** from your menus (a checkmark will appear next to **PerfectPlay**).
2. Play a clip.

Tip
PerfectPlay must be turned on before you begin playback or it will have no effect. PerfectPlay will remain on until you select it again.

Customer Support

Plus customers enjoy the added advantage of premium Customer and Technical support.

Service and Support:
Service and Support is available to answer your otherwise unanswered technical support questions. Service and Support can be reached via the Internet at:

http://service.real.com

Customer Service:
Customer Service is available to help you with questions about your order, delivery, or payment.

Customer Service is available from 8am - 5pm (Pacific Time), Monday through Friday, toll-free in the United States and Canada at **888-768-3248.** Outside the United States and Canada, please dial **206-674-2650.**

You can also contact Customer Service via the Service and Support Web pages by going to:

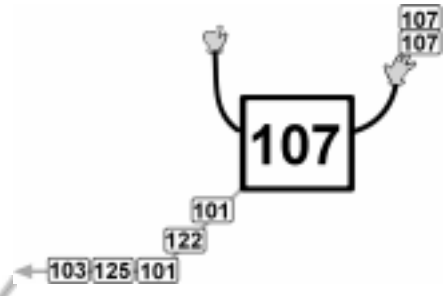
http://service.real.com

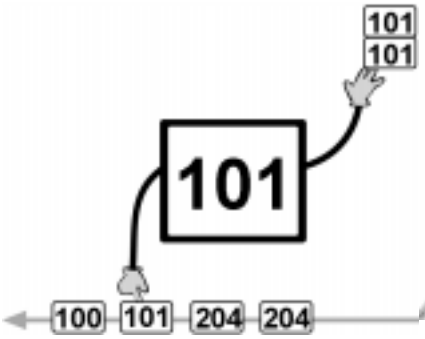
WHAT IS STREAMING MEDIA AND HOW DOES IT WORK?

RealPlayer 7 Plus and RealSystem G2 are a huge leap ahead for streaming technology on the Internet. RealSystem G2 is the collective name for the newest generation of RealNetworks' collection of servers and tools that create and serve content to your RealPlayer. Of course, most of the bits and pieces of RealSystem G2 are hidden from you when you watch or listen to clips. What follows is an explanation of how streaming media works and how RealSystem G2 and RealPlayer 7 Plus fit into the scheme of it all (a little techy but in an easy to understand way; we want you to be as excited by what's going on as we are).

Networking

To understand how RealPlayer Plus works, you first need to understand *networking*. In its most simple form, networking is one computer exchanging information with another machine. This isn't much different from mailing a letter.





The first computer addresses a piece of information to another computer and then sends it across the *wire* (the cable that connects computers to one another). The second computer checks the addresses of all of the messages coming by and reads only the messages addressed to it.

Of course, when you have many computers and a great deal of information this process gets more complex. The essentials described above, however, are the same no matter the size of the network. Every computer has a

unique address and all the *bits* (pieces of information) have an address to which they will eventually be delivered. (For those that know about multicast, that is discussed in Multicast on page 53. For those that don't, be patient, we'll get there.)

A piece of information can be very small, such as a simple 'yes' answer, or very large, such as your favorite song. If everyone on a network were given exclusive use of the wire until the whole message was sent or received, it wouldn't work very well. Can you imagine trying to get your e-mail and having to wait while someone else listened to Beethoven's Fifth symphony? To avoid this problem, messages are broken into lots of little pieces of information that are called *packets*. On most common networks each packet is the same size and is addressed as described above.

This process may sound like extra work, but it keeps the flow of information smooth and constant with fewer bottlenecks. It is easier for a number of same-sized cars to merge onto the freeway from the same ramp than it is for a bunch of cars and an 18-wheel trailer to merge on from the same ramp. In the latter scenario, a large number of cars will have to wait as the trailer passes and then wait again while the trailer waits for room on the highway so it can finish its merge.

Handling the flow of information are a number of specialized traffic cops: routers, brouters, bridges, servers, gateways, etc. However, there are only two that you need concern yourself with: servers and routers.

Servers are computers that store information (e.g., videos, e-mail) and, in a company setting, programs (e.g., word processors). These computers *serve* the information and programs to other computers on the network to which they're connected. Every network has at least one server and sometimes several servers.

Routers scan the flow of information, read the address on each packet of information and sends each packet along the appropriate **route** (thus their name) to get to its final destination.

Internet

The Internet is not a single specific entity. You can't point to one thing and say, "That's the Internet." The Internet is an interconnected collection of networks that speak to each other just as a network is an interconnected collection of servers and computers. Sometimes this connection is physical,

such as a wire or fiber-optic connection, but sometimes the connection is via satellite or microwave. This might sound familiar. When you pick up your phone to call someone, the signal sometimes travels by wire to the person you are speaking to, but it is often sent via microwave tower or satellites, depending on how far away and where you are calling.

Some (very) quick history

[Yes you can skip this, but didn't you always wonder?]

Unlike the phone system, no one set out to create the Internet as we know it today. In fact it didn't even begin life as "the Internet", but rather as *ARPANET* (Advanced Research Projects Agency Network) in 1969.

Note

To be wholly honest, no one set out to create the American phone system as it is today either, it was a number of smaller, private companies that eventually merged into one giant company... before it became several smaller companies again.

That was then

ARPANET's original purpose was to help universities, the American military and the U.S. Defense Department contractors maintain internal communication (even during natural disasters and wars) and exchange information easily. ARPANET began life with four servers, a far cry from the eight million or more servers that comprise the Internet today.

In 1973 ARPANET became DARPANET (**Defense** Advanced Research Projects Agency Network). DARPA pioneered the research of how to best exchange information across this "internetwork." Their research led to the development of *TCP/IP (Transmission Control Protocol/Internet Protocol)* that, for the purpose of this discussion, is currently the standard way all those packets of information your computer sends out are addressed so they get to the right place all together and in the correct order.

Universities were quick to exploit this amazing infrastructure of communication. Around the core of the secure DARPA sub-system, Universities began adding additional servers and connections; the *Internet* was born. For many years the Internet was not much more than a massive e-mail exchange and bulletin-board system (posted messages people could respond to in kind).

This is now

In 1990 CERN—European Laboratory for Particle Physics, with the help of Tim Berners-Lee and the ideas of Ted Nelson, began prototyping a standardization for information sharing that became known as the World Wide Web.

Additional Information

You may recognize that the "www." in most common Internet addresses is in fact World Wide Web. To this day Berners-Lee still shapes and directs how the Web develops through the W3C (World Wide Web Consortium, **http://www.w3c.org/**).

While the Internet is made up of physical entities, the WWW is more an agreed upon collection of *standards* (or *rules*) about how to address packets and how to create Web pages with *Hypertext Mark-up Language (HTML)*. Before these standards, everyone had different formatting codes, much as different word processors create files that other processors may or may not be able to read. HTML gave everyone a way to share information easily. Information began to flow at an increased rate.

Additional Information

You may have noticed that every Internet address begins with HTTP://. HTTP (Hyper Text Transfer Protocol) is another kind of standard, or *protocol*. HTTP tells your browser and computer that HTML has been sent to it so it can read the incoming information. HTTP gives the server and your computer a common dictionary so that the information coming in makes sense.

In the case of your RealPlayer Plus you may notice that the addresses start PNM:// (Progressive Networks Media) or RTSP:// (Real-Time Streaming Protocol) which your RealPlayer recognizes and speaks. PNM is an older protocol but many clips are still around in that form. Any newer, RealSystem G2, content will have RTSP:// before the address of the clip. Edit a Favorite to see its address (URL). These protocols become important if you are using your RealPlayer Plus at work because of firewalls (see Firewalls and Security on page 53).

Equally as important, cheaper, faster hardware became available in the mid-80's and early-90's to the public at large. The Internet exploded from a text-based system to one that contained pictures, sounds, videos and animations. Why? Simple text (words and letters) requires very little information to reproduce. It is easy to send around whole pages of information in relatively few packets quickly, even at slower connection speeds. Sound files can be small, but it depends on their quality and length. The same is true for pictures and small animations. Large animations and video have a unique problem. Both large animations and video are essentially a whole bunch of still pictures that need to be seen at a very quick rate to give the illusion of movement.

Until recently the best way to ensure that video and large animations worked well over the Internet was to download the whole file and run it from your machine at home. If you downloaded the file yourself, the download time was obvious; you had to wait a long time till the file had finished saving. Sometimes, though, you would just be waiting a **very** long time for the movie or large animation to begin. During that time it was being downloaded to a temporary file on your hardrive before it started to play.

Streaming

Enter *Streaming*. Streaming takes files—whether they are sound, video, animation, or other media types—breaks them up into smaller pieces and sends them to their destination. This is very similar to how computers send information across a network or the Internet in general.

You may be scratching your head now asking, "But you just told me that information is sent to my computer in little pieces anyway. What's the difference?" A good question.

Figure 6-1: Sending a book page by page

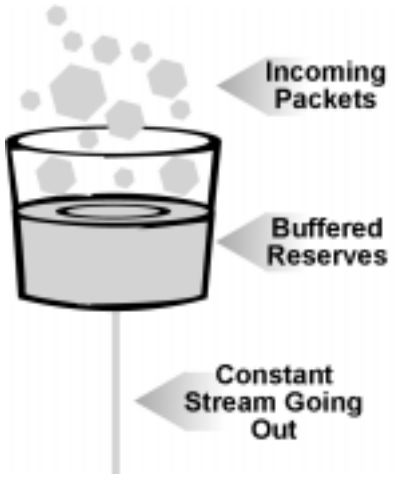
Figure 6-2: Receiving a book page by page

The answer is what makes your RealPlayer so exciting. RealPlayer is able to read the file stream **as it is coming in** and begin playing it long before the rest of the file arrives. Imagine reading a novel as someone hands you page after page, rather than waiting for them to finish the whole book and handing you the entire novel at once.

Of course, if the file was simply read and played for you as it came in, you would have a good number of interruptions; think about how often you have to wait for a Web page to display on your screen. Now, consider that Web pages are much smaller than most media files (audio, video, animation, etc.). RealPlayer combines another technology with streaming to make playback smooth: *buffering*.

During buffering a whole bunch of packets are collected before being played.

Figure 6-3: Buffering



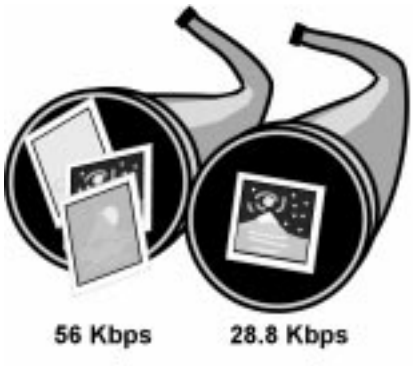
Imagine a cup being filled from above in fits and starts. A small hole in the bottom of the cup allows a constant stream of water to drain from the cup. As long as there is enough water backed-up in the cup, the stream will continue to flow out at a steady rate (see Figure 6-3: Buffering).

As RealPlayer begins to play the file, it continues to collect packets in reserve. This means that even if there are minor delays in getting the information packets to your computer, your experience of the music will be continuous rather than having it stutter along erratically.

So what is a stream?

Above we explain what streaming **does**, but not exactly what it **is**. At least, not what it is for RealPlayer. Each *stream* carries specific types of information. When you watch a video the visual part, what you watch, comes to you in one stream while the sound comes in another. RealPlayer synchronizes these two separate streams so that the right words come out of a newscaster's mouth when they should or so that music crescendos appropriately when the action requires it.

Figure 6-4: Bandwidth



Additionally, streams can be optimized for different *bandwidths*. Bandwidth is, essentially, the amount of information that can pass through a particular point of the wire in a specific amount of time. The higher the bandwidth, the greater the amount of information that can come through (see Figure 6-4: Bandwidth). The speed of your modem, if that is what you use to connect to the Internet, determines the bandwidth of the stream that you can receive.

A 28.8kbps modem can receive, approximately, 28.8 thousand bits per second. A 56K modem is capable of receiving, approximately, 56 thousand bits per second—almost double the capability of a 28.8 modem (remember, a *bit* is a packet of information). Of course these capabilities assume that your phone connections are perfect, which few are. In other words, your actual mileage may vary.

You may, incorrectly, hear people refer to these speeds as the *BAUD-rate*. However, BAUD is actually how frequently the base sound (usually called a *carrier wave*) changes per second. Information is interpreted by how that sound changes. Originally, a single change, say from a high tone to a low tone, was a single bit of information. Because of improvements in compression, many more than just a single bit of information can be transmitted per change in the carrier frequency. The important point is that the higher the bandwidth you can receive, the higher the quality the sound or video will be.

Additional Information

BAUD is named for French inventor Jean-Maurice Emille Baudot (1845-1903). Among his other accomplishments, Baudot patented in 1874 the telegraph code that eventually supplanted Morse code (Morse code fell out of general use by 1920). Baudot's new code was a 5-unit combination of on/off signals of equal duration as opposed to Morse's long/short, dash/dot. The code consisted of 32 five-unit characters

covering each letter of the alphabet, punctuation and additional machine controls. The modern version uses 7 or 8 on/off signals or "bits" that have 128 characters and is otherwise known as ASCII code now. Not content with simply improving transmission speed and accuracy, in 1894 Baudot invented a distribution system for simultaneous (multiplex) transmission of several telegraph messages on the same circuit, which is now common practice for all internetwork communication.

Where do streams come from?

Streams have to be created by someone for you to watch them with your RealPlayer Plus. This means that an original performance or broadcast was recorded and then turned into a *stream*. But how exactly does this happen? Looking at Figure 6-5: Creating an audio stream, you can see the four steps necessary for creating any kind of content.

Figure 6-5: Creating an audio stream

Step 1

The performance is *captured*. Captured simply means *recorded* or *created* in some way so that it can be changed later into a stream. With some content (e.g. animation) there is no performance, only the artist's drawings which are created. The idea, however, is the same. The originals are captured on the computer so they can be changed at a later time into a stream.

Step 2
The captured performance is edited so that the presentation you receive is what the content provider wanted to show you.

Step 3
The edited performance is *encoded* (see Encoding below) into a stream. Essentially this means that the file is prepared to be streamed.

Step 4
The encoded file is placed on a RealServer (see How does streaming occur? on page 49) so your RealPlayer Plus can play it for you.

Additional Information

This holds true for live broadcasts as well. As with live television, the performance or event is viewed by the cameras and/or microphones and is converted as it happens to a form that can be sent to you a few seconds later.

Encoding

The process of getting a file ready to be streamed is called *encoding*. Encoding takes a file and breaks it up into readable packets so it can be sent and read "on the fly" (remember Figure 6-1: Sending a book page by page on page 43?). Every clip, or every stream in a clip, is encoded for a specific bitrate (see also SureStream on page 50). The higher the resolution (the more information) a stream has, the higher the bandwidth (the larger the hose) it needs to get the information through to you at a useable speed.

Additional Information

Encoding is performed by special tools such as **RealProducer™** by RealNetworks available at **http://www.realnetworks.com**. RealPlayer Plus is able to read these files, but it isn't able to encode new files.

When you are playing a clip, you can see at what bandwidth a stream has been encoded by looking at your Status bar (see Figure 3-11: Status bar on page 14). The number shown is the stream bandwidth you are receiving at that moment. For a single audio stream this is straight-forward: if you are receiving a 20Kbps (kilobits per second) audio stream, that's what will show up on your Status bar. What if you are receiving multiple streams? The answer is: Stream

bandwidth is additive. For example, if you are watching a Macromedia Flash animation encoded at 12Kbps that also has an audio stream encoded at 10Kbps, the bandwidth will appear on the Status bar as 22Kbps (see Figure 6-7: Multiple Streams on page 51).

The *pipeline*, or bandwidth available, from your modem has a set limit, you can't make your modem work faster than it is capable of working. Content providers usually encode their streams to handle a variety of bandwidths. The higher the bandwidth, the more information, the better your experience. RealPlayer Plus uses buffering or PerfectPlay (see PerfectPlay on page 36) to overcome minor slowdowns on the Internet. But to watch a stream encoded as a 56K stream using a 28.8K modem you would have to buffer a large amount of information. Buffering means waiting and using a good deal of memory.

Codecs

If something is *encoded*, you must *decode* it in order to read it. To decode information on your computer you use a *codec.* Codec, like 'modem', is a word created by combining two actions of a process.

- **Modem**: modulator/demodulator
- **Codec**: coder/decoder

Modems convert digital information from your computer into analog information (sound waves) that can be sent over traditional phone lines. Codecs read digital information and process it into analog information for your player so you can listen to it. CD players use codecs that convert the digital information on a CD into sound waves that you hear on your speakers or headphones.

Your Player decodes each specific type of file (video, text, etc.) with a specific codec, or *plug-in*.

Additional Information

You can see what plug-ins and add-ins you have by looking on the **Upgrade** tab of your **Preferences...** (see Upgrade Preferences on page 65).

When you first install RealPlayer 7 Plus you will have several plug-ins: RealAudio, RealVideo, RealPix, RealText, and RealG2 with Flash. Each of these different types of media is encoded separately and sent in separate streams that your RealPlayer Plus can decode, synchronize, and play.

From time to time we will update one or more of these plug-ins or even add new plug-ins to enhance your RealPlayer Plus.

Tip

The latest plug-ins are always available via **AutoUpdate**. Just select **Check for Update...** from your **Help** menu. Also, if you attempt to play a clip that requires an updated plug-in, you will be notified and offered to upgrade.

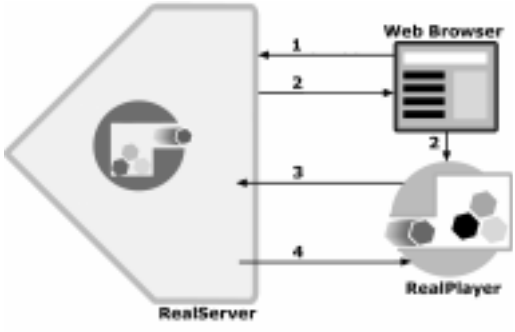
How does streaming occur?

Ok, we now have streams of data being encoded and decoded by the plug-ins and RealPlayer Plus turning all of that information into rich presentations—but where do these streams come from and how does your Player find them?

Remember, the Internet is a simply a bunch of connected *servers*. Servers *serve* information to other computers (this is a loose definition but accurate for the moment). A *clip* is any number of streams that make up a presentation. As we discussed earlier, a clip can be made up of more than one stream, such as a video stream and a sound stream. Clips themselves can be a single entity or several clips in a row. This is why we say, *clip* or in the case of multiple presentations, *multi-clip*.

So what happens when you click on a link in a web page to hear a clip or multi-clip?

Figure 6-6: How RealPlayer connects to a RealServer



Step 1

All Web pages are stored on special servers called web servers. When you click on a link in a Web page to listen to a clip (whether live or pre-recorded) the

web server sends your browser a small pointer file that is associated with that link.

Step 2

Your browser recognizes that the file isn't just another page so it checks to see what program can read it. When it recognizes that it is a RealPlayer file, it starts up your RealPlayer Plus and passes the file off to your Player.

Steps 3 and 4

The file is very small and contains only the name and location of the clip on a *RealServer*. Your Player contacts the RealServer which sends the actual stream and stays in contact with RealServer so you can fast forward or rewind or otherwise navigate through the clip. In the case of Channels and Live Stations, RealPlayer speaks directly to the RealServer without the need for the earlier pointer file.

RealServers are similar to Web servers but rather than serving pages to browsers, they serve streams to RealPlayers. RealServers work in concert with Web servers to bring multi-media to networked environments, such as the Internet.

Note

Why "networked environments" rather than Web or Internet? Because RealServers are also being used on company networks to make company-wide addresses, training, and other information easily available to employees. RealServers are available for download at **http://www.realnetworks.com**.

RealPlayer and RealServers can communicate with each other so that RealServers can pick the appropriate streams to send you. If a RealServer attempted to send a stream that was encoded at a high bitrate (for example T1 [a really fast connection]) and you only had a 28.8K modem, you would not have a very good experience.

SureStream

So how do you get the appropriate stream for your RealPlayer Plus when you try to play a clip? RealPlayer, as mentioned above, can talk to the RealServer that is sending the stream. In a more exact view of the process:

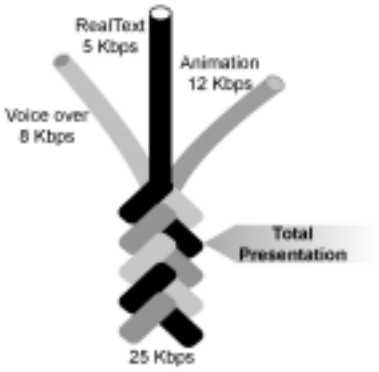
1. RealPlayer sends the **Normal** and **Maximum** bandwidth settings from the **Connections** tab of your **Preferences...** to the RealServer serving the clip.
2. The RealServer automatically selects the streams encoded at a bitrate closest to your **Normal** setting without exceeding it. If your actual connection is faster than **Normal**, the server will upshift to a higher bitrate if it is available.

This ability to upshift is a RealSystem G2 feature called: *SureStream*.

Prior to RealSystem™ G2, whatever bitrate you connected to initially was what you were stuck with for the entire clip, even if your connection got faster or slower. Because streams in the new RealSystem G2 can be encoded for several different bitrates within the same file, RealServer is able to intelligently pick the best possible stream for your current connection.

SureStream also monitors your connection for you. If it senses too much congestion, it will downshift certain streams. Content providers can choose which streams they feel are more important to your experience (for example voice quality over animation). If SureStream senses that your connection is better than expected, it will upshift to a higher bandwidth on all or some of the streams to bring you a higher quality presentation. Upshifts and downshifts will happen automatically.

Figure 6-7: Multiple Streams



SureStream becomes especially important when you are viewing some of the newer presentations that RealPlayer is capable of playing. When playing a SMIL presentation (see SMIL below) each of the different streams for each of the components of the presentation has a bitrate associated with it. The total of all of those bitrates is the lowest connection speed you need to have to play the clip without excessive buffering. For instance, a presentation that had an 8Kbps voice-over, a 12Kbps Macromedia Flash animation component, and a 5Kbps RealText component would need at least a 25Kbps connection (8+12+5=25) to play without buffering constantly. Each stream flows into the same “river” and adds to the whole presentation that your RealPlayer Plus plays (see Figure 6-7: Multiple Streams).

Of course, RealPlayer buffers for you automatically to help you play higher bitrate streams. So even over slower connections you can experience superior quality media. The price you pay to watch higher bitrates over slower connections is the time it takes to buffer, which is still much shorter than it would be to wait for the whole file to download.

SMIL

Now the fun begins. RealPlayer can play multiple clips presented simultaneously as a single presentation. This is done using SMIL (pronounced "smile," Synchronized Multimedia Integration Language—you see why we stick with acronyms?). SMIL is one of the newest language sets on the Web. While HTML (Hyper Text Mark-up Language) controls how Web pages present text and pictures on your computer screen, SMIL controls how *complex* media presentations should be streamed to and laid out within your RealPlayer Plus.

Figure 6-8: SMIL presentation

RealPix
RealText
RealVideo
Songs
Time Landscapes
Ezra Smith's famous classic instrumental songs from the "time before time began".
He has performed around the world with his accompanying orchestra

By "complex" we mean a presentation that includes more than one clip being received by RealPlayer Plus which is then synchronized with each clip being presented in a separate space. For instance, you could watch a music video (RealVideo), see the lyrics (RealText), hear the music (RealAudio), and browse stills from the concert (RealPix) all presented to you at the same time (see Figure 6-8: SMIL presentation).

In fact, the Tutorials that introduce the new RealPlayer 7 Plus to you are SMIL presentations that include RealAudio, RealPix, and RealText. Each element of the presentation is created and *encoded* (see Encoding on page 47) separately and then the lay-out is described to your RealPlayer using SMIL so it can present them together.

Additional Information

To learn more about SMIL go to:
http://www.w3c.org/AudioVideo/

Multicast

Multicast is the organic chemistry of streaming. If you had the joy of taking organic chemistry, or almost any higher level science class, the first thing you are told is: Forget everything you've been taught before; because it's wrong.

Well, we won't be quite that cruel here, but *multicasting* is a unique process in the network environment. In networking, every packet of information is uniquely addressed to a specific computer. Usually this makes a great deal of sense as each computer is more often doing something different than any other computer connected to the Internet at any one time. But what about when 25,000 people all tune in to see the same concert or sports event? Suddenly, these people are watching exactly the same thing, but each person has to have their own individual stream. This can really slow down the Internet and diminish your experience.

Multicast takes an innovative approach to this problem. What if you created one stream, or a limited number of streams, and told every Player connected to the event to read the same stream by "dipping into" it? Rather than 25,000 replications of each stream, there are only a few replications which keeps congestion low and your connection more reliable and responsive.

Multicast is automatically selected by your Player if it is available for a broadcast.

Additional Information

Multicast requires special hardware on the Internet that must be provided by Internet Service Providers (ISPs) and other hosting services and isn't always available. Also, Multicast may not be selected if your **Transport Preferences** are set to use only one specific transport (see Transport Preferences on page 69).

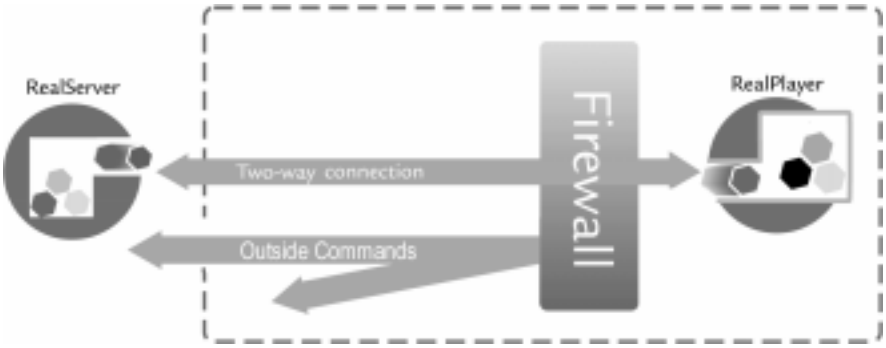
Firewalls and Security

Security is one of the biggest concerns for people connected to the Internet, whether at a business or at home. Businesses, however, have specific concerns

and specific ways of dealing with those concerns. For this reason, certain precautions have become common on networks.

When you log on to a computer at work, you almost always have to type in a username and password to gain access to the full network. This is one type of security. Password security is mainly designed to protect your machine at its present location. *Firewalls*, a different type of security, are designed to protect your computer and network from outside influences.

Figure 6-9: Firewall



Firewalls are a complex discussion, but there is one specific aspect that is of interest to RealPlayer Plus customers. In general, a firewall is a gatekeeper on the network. All outside traffic passes through the firewall when communicating with the Internet and other off-site computers. Most of this traffic is one way: the firewall will allow you to send commands out, such as requesting a Web page, but it won't allow two way communication that would give outside machines and programs control over internal machines and programs. Damage to the network and theft of information is curtailed by using this method.

However, RealPlayer Plus requires a two-way connection to function properly. Without two-way communication you cannot fast-forward through a clip or let a RealServer know that your system can accept a higher bandwidth stream. RealPlayer Plus can work through a firewall without exposing your network to any security risk, but you may need to change your **Proxy Preferences...** (see Proxy Preferences on page 72).

Proxy services in concert with your Transport Preferences, allow RealPlayer to contact the Internet through a two-way connection while still providing protection to the rest of the system. Proxy services act as an intermediary, making requests on behalf of people on the inside of the firewall. For example, a web proxy knows how to get requests on behalf of a web browser. Many proxy

firewalls, require that every program running inside a firewall have special configuration options. RealPlayer can work using proxy, but it must be configured to do so (see Proxy Preferences on page 72).

Additional Information

For a much more in-depth discussion about firewalls or to solve problems when trying to use RealPlayer Plus from work, see our web page:
http://service.real.com/firewall/

Content: How to find it

With over eight million servers, each hosting thousands of web pages, the Internet is overwhelmingly huge. Finding content can seem daunting, but RealPlayer 7 Plus has several built-in features to help you, as well as access to web pages that do some of the sifting for you.

Channels and Live Stations

Your best tools are part of RealPlayer 7 Plus: **Live Stations** and **My Channels** (including Real.com Take5). Both have a number of pre-loaded links to clips, both live and recorded. Additionally, Live Stations has the ability to **Scan** for content (see Scanning on page 26).

Search and Real.com Guide

Search lets you type in words or phrases of interest and looks for streaming media related to those subjects (see Figure 3-5: Search bar on page 11). **Search** will return a *results page* similar to those you see when you search for Web pages. You must be connected to the Internet for **Search** to function.

Located on the right of your Search bar is the **real.com** button which will take you directly to the *Real.com Guide*, the most comprehensive media hub for free Internet audio and video software and programming. Find programming featured on the Internet and play it with one click. Choose from a comprehensive listing of downloadable music from Listen.com, personal calendars and access to premiere programming. More than 2,000 radio and television stations, 8,000 Web sites and 500 daily live events are offered.

Web Sites Sub-Menu

The **Web Sites sub-menu** (under **Favorites**) on your RealPlayer Plus offers everything from music to entertainment to sports to news. And because the menu talks to RealNetworks, we make sure that the connections are always the right ones. If the site moves, we keep track of it so you don't have to do it yourself.

Of special interest should be your Real.com™ Guide selections. Real.com is a collection of pages with links to programming all over the Internet covering live and pre-recorded streaming media of specific topics.

PREFERENCES

One of the most important tools you have in your RealPlayer 7 Plus is your *Preferences*. **Preferences** are settings that allow you to finely adjust the way RealPlayer Plus works and looks to better match your own system and desires.

You can customize RealPlayer 7 Plus by changing the settings in the **Preferences** dialog (opened from the **Options** menu). These settings control various aspects of RealPlayer Plus's functionality, such as the number of clips to remember, what services you subscribe to and proxy information. Preference settings apply to all applications using RealPlayer Plus technology including RealPlayer Web page plug-ins (music and video that appears as part of a Web page rather than playing in your Player).

How to open your Preferences

Preferences are just a click (or two) away.

1. Select the **View** menu.
2. Click **Preferences...**

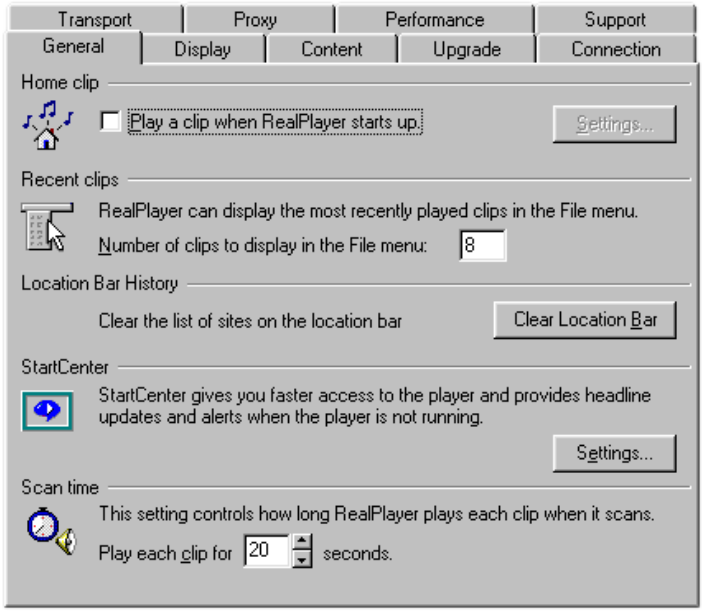
Windows Control Panel [Windows only]

On Windows based machines, several of your **Preferences** are also available from your **Windows Control Panel**. Most of these **Preferences** deal with network and Internet connectivity and support issues. All of these **Preferences** will appear on the same tabs as they do within your RealPlayer Plus and are described in the following pages. Due to differences in the operating systems, this functionality is not available on the Macintosh.

General Preferences

The General tab in the **Preferences** window contains settings for the number of clips saved on the "Open Most Recent" area at the bottom of your **File** menu and other aspects of RealPlayer Plus's general functions.

Figure 7-1: General tab



Home Clip: (Default is Off)

When selected, RealPlayer will automatically begin playing the clip you select whenever you launch the program similar to the Home page for your browser. You can choose to use a Channel or a specific clip in the Settings dialog. If the clip or channel you are currently playing is the one you would like to use, simply select Use Current Clip.

Recent Clips: (Default is 8)

You can quickly replay clips by selecting your most recently played clips at the bottom of the **File** menu. This setting controls how many clips are displayed.

Location Bar history

Click **Clear Location Bar** to clear the list of previously played clips; similar to clearing the history in your browser.

StartCenter [Windows only]: (Default is On)

RealPlayer Plus can be launched when you start Windows and stay active in your *System Tray* so that it responds more quickly when you want to play a clip. The System Tray is opposite your Window's Start button in the same area that you see the Time and Date. The StartCenter icon also gives you quick access to Player functions and content. While you are connected to the Internet, StartCenter will also keep your Channel Headlines and Live Stations updated as well as check for Real.com Message Flashes and RealPlayer Plus updates while you are connected to the Internet even when you don't have RealPlayer Plus open.

To change your StartCenter behavior, click **Settings...** Check or uncheck **Enable StartCenter** and then select the behavior that is most convenient, whether to always display the StartCenter icon or to only display it when you receive a Flash (see Real.com Message Service on page 20).

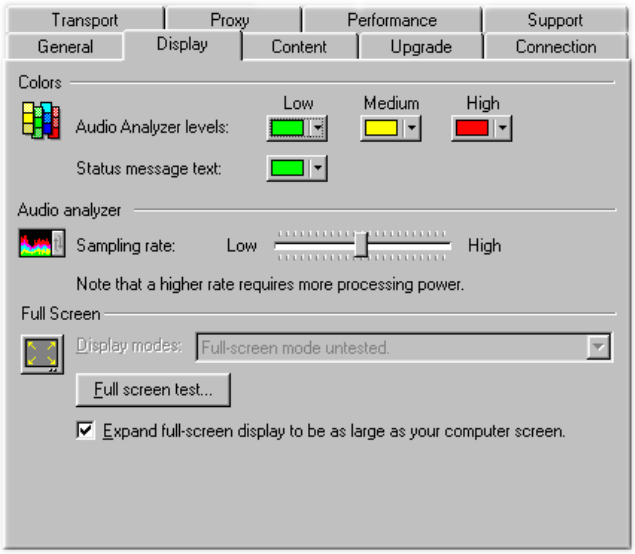
Scan time: (Default is 20 seconds)

This setting affects all Scan options (Favorites, Playlist, and Stations). Each clip in the selection will be played from its beginning for the specified amount of time.

Display Preferences

Display Preferences change the look of your Player.

Figure 7-2: Display tab



Colors:

Audio Analyzer levels: These choices allow you to color code the sound levels (low, medium, high) in your Audio Analyzer.

Status message text: Choose the color of the text that appears in the Status bar. The **"High" Audio Analyzer level** setting will also be the color for **Wave** mode.

Audio Analyzer: Sampling rate (Default is midway between "Low" and "High")

Higher sampling rates provide more accurate visual information about the sound you are receiving.

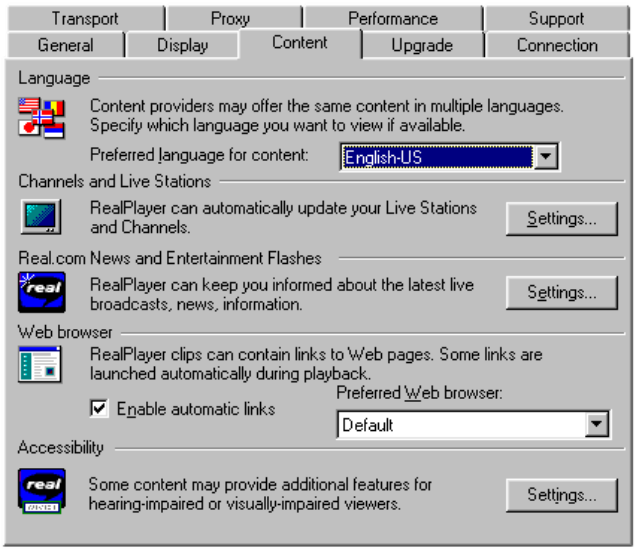
Full Screen test

To run in Full Screen mode, RealPlayer must first test your monitor's and computer's capabilities. The best display mode will be listed or the message: **Full screen mode untested**. The test will be run automatically if you attempt to get into Full screen mode by using the Zoom control. If you wish to run the test again for any reason or to run it manually, click **Full screen test...** Follow the prompting on your screen to test your computer.

Content Preferences

Content Preferences affect how content is displayed, when it is updated and whether or not you subscribe to Real.com News and Entertainment Flashes.

Figure 7-3: Content tab



Language: (Default is Language initially installed)

By default, RealPlayer Plus will display any text components in the language of the version you installed. If you prefer another language be displayed or played by content that provides more than one language, specify your preference here from the drop down list.

Channels and Live Stations: (Default for both is On)

Click **Settings...** to enable or disable the automatic updating of your Headlines and enable or disable the automatic scrolling of Headlines in your Channels tab.

Headlines will only be updated while you are connected to the Internet. The Player will not attempt to establish a dial-up connection solely for the purpose of updating your headlines even if you have automatic updating enabled.

Real.com News and Entertainment Flashes: (Default for all is Off)

Click **Settings** to subscribe or change your subscription to either Real.com Take5 and Real.com New Flashes (see Real.com Message Service on page 20).

Also select the **Alert level**. By choosing a level you can control how frequently the StartCenter icon flashes to let you know that you have received a Flash.

Web browser: (Default is On)

Some clips contain synchronized multimedia events that display Web pages or images in your browser while you are playing a clip. This setting controls whether RealPlayer Plus applications enable these events.

Preferred Web browser: If you have more than one browser installed, you can select which will be used by default when there is a synchronized event.

Accessibility

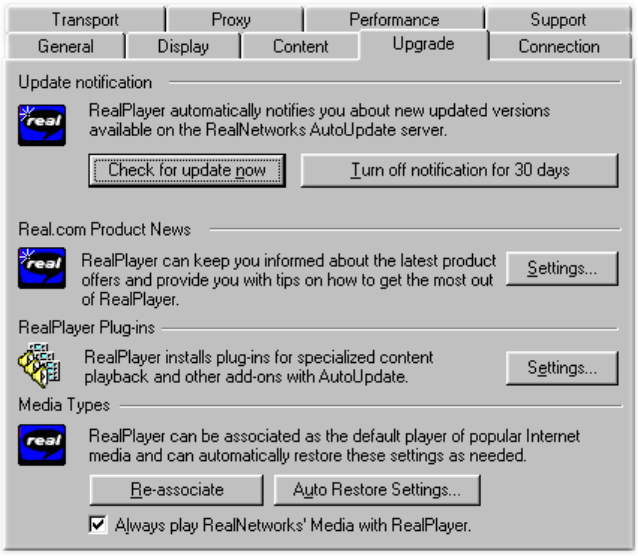
Content providers can use RealPlayer's abilities to offer accessibility features**.** Click **Settings...** to turn on specific options.

Select **Use accessibility features when available** to activate either the **Show captions** or **Display descriptive audio track** options. When selected, RealPlayer Plus will either display closed captioning or use a descriptive audio track. If the clip has been authored without captioning or a descriptive track, this setting will have no effect.

Upgrade Preferences

Using the Upgrade tab of the Preferences window, you can customize how often the application talks to RealNetworks to check for available upgrades, change your installed components, correct file-type issues, and whether or not you subscribe to Real.com Product News flashes.

Figure 7-4: Upgrade tab


Transport
Proxy
Performance
Support
General
Display
Content
Upgrade
Connection
Update notification
RealPlayer automatically notifies you about new updated versions available on the RealNetworks AutoUpdate server.
Check for update now
Turn off notification for 30 days
Real.com Product News
RealPlayer can keep you informed about the latest product offers and provide you with tips on how to get the most out of RealPlayer.
Settings...
RealPlayer Plug-ins
RealPlayer installs plug-ins for specialized content playback and other add-ons with AutoUpdate.
Settings...
Media Types
RealPlayer can be associated as the default player of popular Internet media and can automatically restore these settings as needed.
Re-associate
Auto Restore Settings...
Always play RealNetworks' Media with RealPlayer.

Update notification: (Default is On)

While on, RealPlayer periodically contacts RealNetworks *in the background* to determine if a newer version or necessary new components are available for your RealPlayer Plus. If an upgrade is available, RealPlayer Plus offers to download the new files. If you choose to accept any or all of the offered downloads, they will be authenticated and installed automatically.

Real.com Product Flashes: (Default for all is Off)

Click **Settings...** to subscribe or change your subscription to either RealPlayer Tips and Tricks and Real.com Product News and Special Offers (see Real.com Message Service on page 20).

Also select the **Alert level**. By choosing a level you can control how frequently the StartCenter icon flashes to let you know that you have received a Flash.

RealPlayer Plug-ins

Click **Settings...** to see a listing of the different components and the files you can use with your RealPlayer (e.g. AVI, WAV, etc.). To remove a component highlight it and click **Remove**. You will not be allowed to remove *core* components of RealPlayer. Core components are those components that are considered essential for the operation of RealPlayer.

Warn before installing new components: (Default is On) While checked, RealPlayer will alert you before continuing with the installation of any new components or updates. If unchecked, RealPlayer will automatically begin installation of any new components that it downloads.

Media Types

When programs are installed, certain *file-types* are *associated* with that program. A file's "type" is described at the front of every file and alerts your computer to what programs can use the file (see What types of files can RealPlayer Plus play? on page 89). Some programs can use other program's file-types (for example, word processors can often read other word processor documents). When you click on a link or a file, Windows checks to see what program is associated with that file-type and automatically launches that program (for example, double-clicking on a .ram file should launch RealPlayer Plus and begin to play a clip).

Re-associate: Occasionally the installation of a new program causes these file-types to no longer be associated with RealPlayer Plus. Clicking **Re-associate** will allows RealPlayer Plus to automatically use RealNetworks file-types again.

Auto-Restore Settings...: If there are file-types you always want RealPlayer to use, you can select those types by clicking **Auto-Restore Settings...** and selecting the file-types you wish manually.

Always play RealNetworks' Media with RealPlayer: (Default is On) By selecting this option RealPlayer automatically selects RealNetworks' media in the **Auto-Restore Settings** list. You can alter what is selected.

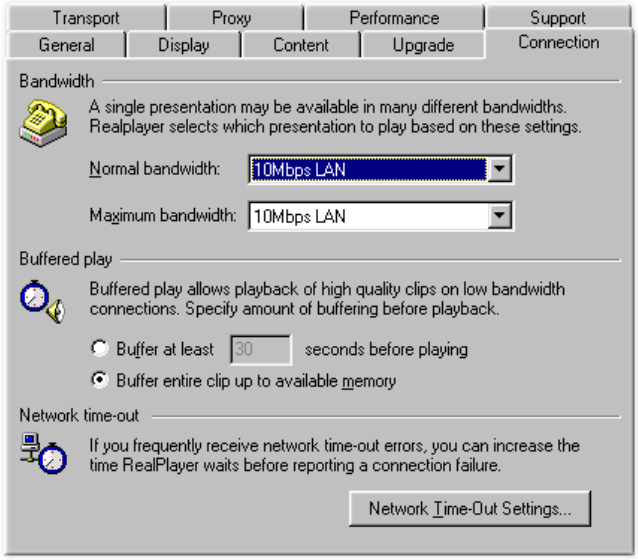
Additional Information

Often, the terms *file-type* and *file extension* (such as .ram or .doc) can be used interchangeably. In actuality, extensions are not always an indication of file-type. File-type is determined by code in the file *header*, that portion of the file that is read first when the file is opened or accessed.

Connection Preferences

The Connection tab in the Preferences window contains information about the speed of your connection and how long RealPlayer Plus will continue to try to connect before telling you it can't.

Figure 7-5: Connection tab


Transport
Proxy
Performance
Support
General
Display
Content
Upgrade
Connection
Bandwidth
A single presentation may be available in many different bandwidths. Realplayer selects which presentation to play based on these settings.
Normal bandwidth:
10Mbps LAN
Maximum bandwidth:
10Mbps LAN
Buffered play
Buffered play allows playback of high quality clips on low bandwidth connections. Specify amount of buffering before playback.
Buffer at least
30
seconds before playing
Buffer entire clip up to available memory
Network time-out
If you frequently receive network time-out errors, you can increase the time RealPlayer waits before reporting a connection failure.
Network Time-Out Settings...

Bandwidth: (Default is set during installation)

RealPlayer Plus automatically selects which content can be delivered in real-time over your connection. (See Figure 6-4: Bandwidth on page 45.)

Normal bandwidth: This is automatically determined by the answers you give during installation. If this setting is too high you will experience extended buffering as RealPlayer Plus attempts to play clips intended for higher (faster) bandwidths. For instance, if you have a 28.8K modem but routinely connect only at 20Kbps, you should probably set this to 19.2Kbps.

Maximum bandwidth: Gives RealPlayer Plus the upper limit for streams it should "upshift" to through SureStream (see SureStream on page 50).

Buffered Play: (Default is Entire Clip)

Determines how much RealPlayer Plus should buffer before beginning to play. More buffering allows for a better quality experience on slower connections.

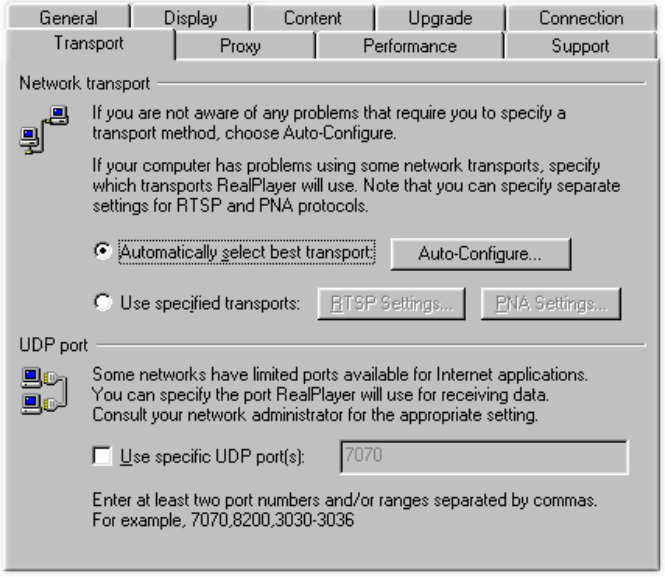
Network time-out: (Default is 20 sec. for Connection and 90 sec. for Server)
These settings determine how long RealPlayer Plus will continue to try to connect to a server. If this time is exceeded, your Player will tell you it cannot connect or that it has lost its connection.

Transport Preferences

The Transport tab in the Preferences window allows you to customize your network connection for RealPlayer Plus. Most likely, if you are connecting to the Internet through a commercial Internet Service Provider (ISP), you will not have to set any of the items on this tab.

The description of these preferences assumes a basic knowledge of Internet protocols and firewalls. For more information about firewalls, refer to our Web site at: **http://service.real.com/firewall/**

Figure 7-6: Transport tab


General
Display
Content
Upgrade
Connection
Transport
Proxy
Performance
Support
Network transport
If you are not aware of any problems that require you to specify a transport method, choose Auto-Configure.
If your computer has problems using some network transports, specify which transports RealPlayer will use. Note that you can specify separate settings for RTSP and PNA protocols.
Automatically select best transport:
Auto-Configure...
Use specified transports:
RTSP Settings...
PNA Settings...
UDP port
Some networks have limited ports available for Internet applications. You can specify the port RealPlayer will use for receiving data. Consult your network administrator for the appropriate setting.
Use specific UDP port(s):
7070
Enter at least two port numbers and/or ranges separated by commas. For example, 7070,8200,3030-3036

Network transport

Auto-Configure... : (Default) Use this setting if you are not aware of any problems that require you to specify a transport method. RealPlayer Plus will automatically configure itself to use the most efficient mode of transport for your connection.

Use specified Transports: RTSP, PNA. Use this setting if your computer has problems using some network transports. (Consult your network administrator for the appropriate settings.)

Select **Use specified transport...** and then click either **PNA** or **RTSP** to access the Specify Transports dialog (described on next page) for each protocol.

UDP port: (Default is Off)

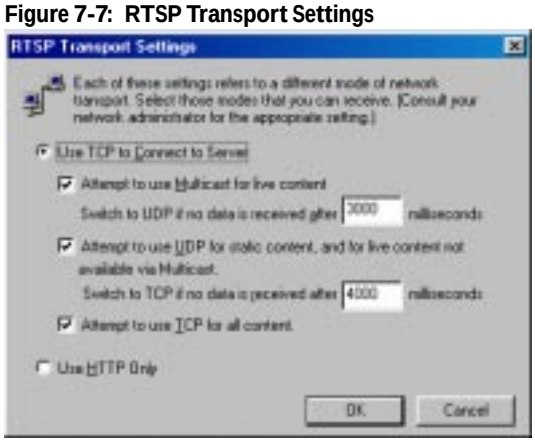
Some networks have limited ports available for Internet applications. This setting controls which port RealPlayer applications use for receiving data. (Consult your network administrator for the appropriate settings.)

Additional Information

The **UDP port** setting does not affect TCP packets, which can only be received through Port 7070.

Specify Transports dialog

Figure 7-7: RTSP Transport Settings


RTSP Transport Settings
Each of these settings refers to a different mode of network transport. Select those modes that you can receive. (Consult your network administrator for the appropriate setting.)
Use TCP to Connect to Server
Attempt to use Multicast for live content
Switch to UDP if no data is received after 3000 milliseconds
Attempt to use UDP for static content, and for live content not available via Multicast.
Switch to TCP if no data is received after 4000 milliseconds
Attempt to use TCP for all content.
Use HTTP Only
OK
Cancel

The Transport Settings dialog allows you to select the different modes of network transport that you can receive. You can have different settings for PNA and RTSP. (Since these settings are network specific there are no meaningful defaults. Consult your network administrator for the appropriate settings.)

Use TCP to Connect to Server

Select this option if you want RealPlayer Plus to use TCP for the initial connection to RealServer.

Attempt to use Multicast for live content: Select this option if you want RealPlayer Plus to attempt to receive live content through Multicast.

If you select this option, indicate how many milliseconds the Player should attempt to use this type of transport before switching to UDP.

Attempt to use UDP for static content: Select this option if you want RealPlayer Plus to attempt to use UDP for static content and live content not available via Multicast.

If you select this option, indicate how many milliseconds the Player should attempt to use this type of transport before switching to TCP.

Attempt to use TCP for all content: Select this option if you want RealPlayer Plus to use TCP for all content.

Use HTTP Only

Select this option if you are behind a firewall and cannot receive data through TCP. All data will be streamed through HTTP.

Warning

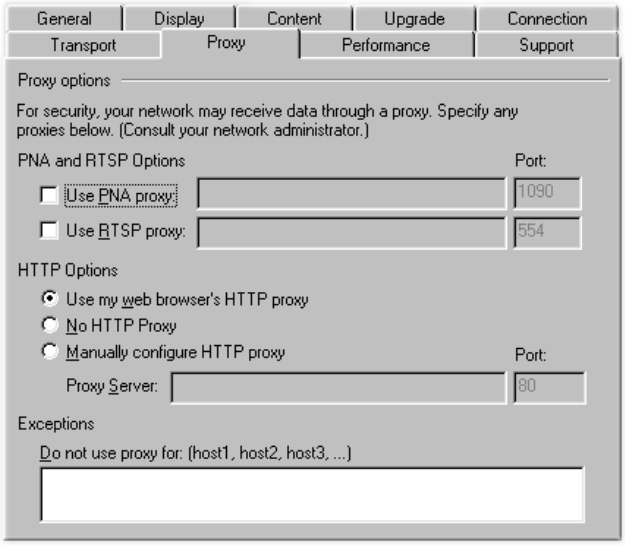
You may not be able to receive some content if you select the **HTTP Only** option.

Proxy Preferences

A proxy is a server that acts as an intermediary between a company's protected LAN (local area network) and the Internet (see Firewalls and Security on page 53). RealPlayer Plus can be configured to work with different proxy servers by setting the appropriate preferences. (Since these settings are network specific there are no meaningful defaults. Consult your network administrator for the appropriate settings.)

For more about proxies and firewalls see: **http://service.real.com/firewall/**

Figure 7-8: Proxy tab



PNA and RTSP Options

Click to select either or both of these proxies if RealPlayer should use them to connect to the server. For each applicable proxy enter the appropriate domain name or IP address of the server and the port number that RealPlayer should use to communicate with the proxy server.

HTTP Options: (Default is "Use my web browser's HTTP proxy")

Select appropriate HTTP proxy. You can have different proxy information for HTTP than you have for PNA or RTSP.

Exceptions:

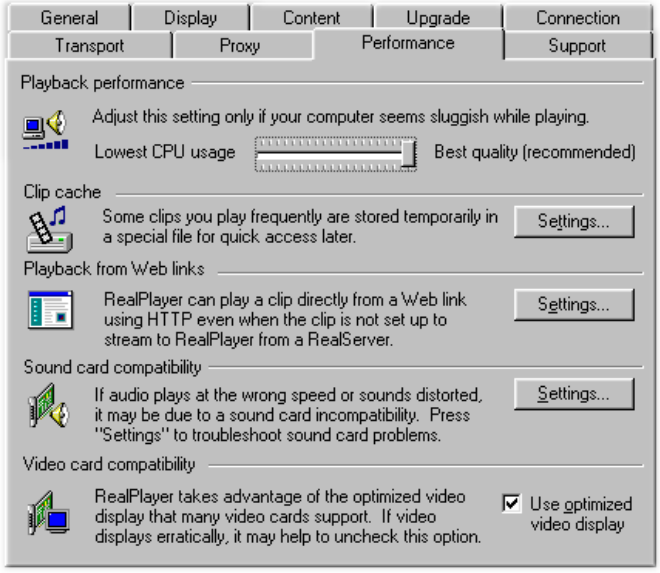
Do Not Use Proxy for: (host1, host2, host3...) You can exclude certain local hosts (domain names or IP addresses) with which you do not need to

communicate using the proxy server. Enter these hosts in this field. This field is only available if you have enabled one of the **Use proxy** options.

Performance Preferences

Settings on the Performance tab tailor system compatibility. In most cases you should not change them. However, you may find them helpful if you have an older system or if you are experiencing specific video problems (see Video/Display Problems on page 79).

Figure 7-9: Performance tab


General
Display
Content
Upgrade
Connection
Transport
Proxy
Performance
Support
Playback performance
Adjust this setting only if your computer seems sluggish while playing.
Lowest CPU usage
Best quality (recommended)
Clip cache
Some clips you play frequently are stored temporarily in a special file for quick access later.
Settings...
Playback from Web links
RealPlayer can play a clip directly from a Web link using HTTP even when the clip is not set up to stream to RealPlayer from a RealServer.
Settings...
Sound card compatibility
If audio plays at the wrong speed or sounds distorted, it may be due to a sound card incompatibility. Press "Settings" to troubleshoot sound card problems.
Settings...
Video card compatibility
RealPlayer takes advantage of the optimized video display that many video cards support. If video displays erratically, it may help to uncheck this option.
Use optimized video display

Playback performance

RealPlayer Plus uses this setting to optimize the performance of clip playback. Change this performance setting only if your computer seems sluggish or has problems while playing content.

Clip Cache: (Default is On)

Some content is created so that frequently used media can be cached, or temporarily saved, so you don't have to stream the information again only a short time later. The next time you play the clip or other clips that use the cached information they will begin playing sooner than if you had to stream that information again.

Settings... From this dialog you can Enable cache, select the cache file size (by using the slider) and clear the cache, by clicking **Empty clip cache...**

Additional Information

Emptying the clip cache will not free up additional disk space. **Empty clip cache...** simply purges the saved images and sound from the file much like emptying a drawer of old papers.

Playback from Web links [Internet Explorer only]: (Default is Enabled, Play)

Sometimes links are authored to download a clip rather than streaming.

Settings...

Enable instant playback allows you to select a specific default behavior. Clicking on a link can either Play and save, Play, or simply Save the clip.

By selecting **Always Ask**, RealPlayer will ask how to handle a link when you click on it, the default action will be automatically selected, but you will have the opportunity to change the selection before RealPlayer acts.

Default folder for save lists where files will be saved. To choose a new directory for saving, click **Change Location...**, navigate to a new place, and click **OK**.

Sound card compatibility [Windows only]

Modify sound card settings to overcome audio problems.

Settings...

Disable 16-bit sound (use 8-bit only): Use this setting if you have an older sound card and clips sound scratchy or distorted.

Disable custom sampling rates: Use this setting if clips play at the wrong speed or sound scratchy or distorted.

Video card compatibility

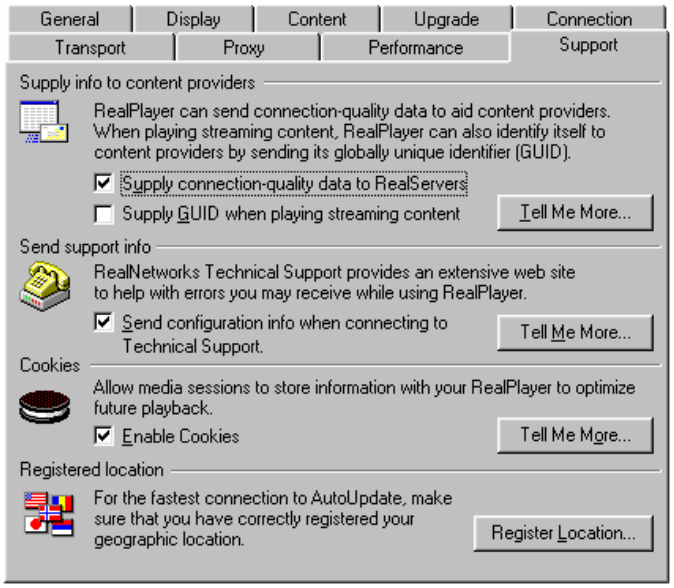
Some video cards are not compatible with RealPlayer Plus's optimized video. (See also Why is my video playback ugly? on page 80 for a list of symptoms and solutions or come to **http://service.real.com/** for the latest information.)

Use optimized video display: When selected, RealPlayer uses Windows DirectX capabilities on the PC and similar enhancements on the Macintosh to deliver the best video possible. In some cases, older cards or versions of DirectX can cause distorted or bad video. Uncheck this option and attempt to play the video again to determine if this Preference is the issue.

Support Preferences

Support Preferences determine how much information you share with content providers. To learn more about any of these options click **Tell Me More...** RealPlayer will open your Browser and take you to the appropriate Web page (the **Registration location** section has a link in its dialog box).

Figure 7-10:Support tab


General
Display
Content
Upgrade
Connection
Transport
Proxy
Performance
Support
Supply info to content providers
RealPlayer can send connection-quality data to aid content providers. When playing streaming content, RealPlayer can also identify itself to content providers by sending its globally unique identifier (GUID).
Supply connection-quality data to RealServers
Supply GUID when playing streaming content
Tell Me More...
Send support info
RealNetworks Technical Support provides an extensive web site to help with errors you may receive while using RealPlayer.
Send configuration info when connecting to Technical Support.
Tell Me More...
Cookies
Allow media sessions to store information with your RealPlayer to optimize future playback.
Enable Cookies
Tell Me More...
Registered location
For the fastest connection to AutoUpdate, make sure that you have correctly registered your geographic location.
Register Location...

Supply info to content providers

Data helps content providers refine their methods and improve their quality and service.

Supply connection-quality data to RealServers (Default is On) If you do not wish to share your information with content providers, do not check this box.

Supply GUID when playing streaming content (Default is Off) sends your Player's unique identifier (*GUID, see below*) to RealServers. Your GUID is sometimes your *ticket* to view secure or otherwise 'members only' content (see additional information on next page). You must select this option to view this type of secure content, but you can uncheck this box for other viewing.

Additional Information

A Globally Unique Identifier (GUID) is an alphanumeric identifier in RealPlayer 7 that is disabled by default and is only enabled if you turn on the feature in Preferences. A GUID is randomly generated by RealPlayer 7 during installation. RealNetworks uses publicly documented standards to create a GUID. A GUID is used to indicate a unique installation of a product, and is found in many popular software applications.

RealPlayer 7 has GUIDs disabled by default (set to all zeroes so that it is not unique). Some content providers require that you enable your GUID in order to play their content (you will receive an error from the RealServer if a GUID is required to access the content. This is typically because their content is limited-access (such as pay-per-view or for registered members only). If you enable the GUID, it will be sent to all streaming media servers when you play a clip or broadcast.

Send support info

If selected, RealPlayer Plus will send information about your computer to our support database when you have a connection or program error in order to provide better information and possible solutions to any problems that may arise. If you do not check the box, you may only receive general error messages.

Cookies: (Default is Enabled)

By storing information about previous media sessions, content providers can better customize your experience and provide better connectivity.

Registered location

Use this setting to change your physical location in our registration database. By having accurate information, RealNetworks can connect you to the nearest possible server for updates (see Figure 7-4: Upgrade tab on page 65) and other connections.

TROUBLESHOOTING

Everyone has problems on occasion. Fortunately, most problems have occurred before and we have answers for them. Below are some of the most common confusions and issues you may run into when running RealPlayer 7 Plus. If you still have unanswered questions, please visit **http://service.real.com** for the most up-to-date information. (See also Help with Using RealPlayer 7 Plus on page 7.)

Video/Display Problems

How do I get Full Screen to work?

For Windows

If you are having problems with Full Screen (e.g., only a black screen appears), make sure that you have the following installed on your machine:

Microsoft DirectX with DirectDraw (v5.0 or later)

You can access the most recent version and installation instructions from RealNetworks' DirectDraw Support page:

http://service.real.com/fullscreen/

When you install DirectX, you must choose to upgrade your video drivers.

Updated video drivers

You can usually find the latest drivers on the website of the company that manufactured your video card. By upgrading your video drivers you may lose some functionality provided by your old drivers. Your video card manufacturer is solely responsible for the scope of these functions.

As a convenience we offer links to some of the most common video card manufacturers on the RealNetworks' video driver support page:

http://service.real.com/fullscreen/driverlink.html

For Macintosh

If Full Screen does not seem to be working, try selecting **Full Screen** from the **Zoom** control *after* you have connected to the clip you wish to view.

How do I exit Full Screen mode?

Use the ESC key (Escape key) on your keyboard to exit Full Screen mode in Windows or on Macintosh.

Why is my video playback ugly?

RealPlayer Plus shows video in whatever color resolution you have your system set to display. If the display settings in your Control Panel are set to 256 colors, you may not get good results trying to view video clips. You should increase your screen resolution to 16-bit (thousands) or 24-bit (millions) color.

To change your screen resolution in Windows

1. Choose **Settings/Control Panel** from your **Start** button.
2. Double-click **Display**.
3. Click the **Settings** tab.
4. Change the **Color palette** setting to **High Color (16-bit)** or **True Color (24-bit)**.

   Warning

   You may not be able to go to a higher color setting depending on the desktop area you have selected and your video card. Windows will only allow you to select choices that are appropriate for the installed video driver.

5. Click **Apply**. You may have to reboot your computer to have the changes take effect; Windows will inform you if you do.

   Additional Information

   Avoid using Zoom (Figure 3-9: Display panel) if you do not have a high bandwidth connection or very good connection.

To change your screen resolution on Macintosh

1. From the Apple Menu, select **Control Panels**.
2. Open the **Monitors & Sound** control panel.
3. Change Color Depth to **Thousands** or **Millions**.
4. Change Resolution to **800x600** or better.

Why is my video distorted or not displaying at all [Windows]?

To deliver the best video in the fastest way possible, RealPlayer Plus uses the latest optimized video protocols. Not all video cards or their drivers will function properly with this optimized approach. If a video card or its drivers are incompatible you may see unexpected results (see The Symptoms immediately below).

The Symptoms

Incompatibility with optimized video usually manifests itself in one of the following ways:

1. You do not see any video in your RealPlayer Plus Display panel. All you see is an empty, magenta square.
2. You do not see any video in your RealPlayer Plus, only a snowy picture that moves.
3. You see video in your RealPlayer Plus but it has a green tint to it and may be distorted so that you only see stripes of the video or only part of an enlarged picture. The overall effect is as if you were looking through a hole at a larger screen.
4. You see video in your RealPlayer Plus but it is stretched vertically or horizontally in only one direction. The picture distorts into a wide, flat picture or a tall, thin one.
5. You see video, but it is more like a slide show than moving pictures and/or the edges are ragged and pixelated (looks like it is made up of a bunch of blocks rather than a clear picture).

If you are experiencing one, or more, of these symptoms, confirm the problem by using the test below to be sure that optimized video is the issue and not some other conflict.

Confirming the Problem

If you are seeing any or all of the above symptoms, do the following to make sure it is an optimized video issue:

1. Connect to a video clip or click **Play** to start playing a loaded video clip.
2. Wait until the video is exhibiting one of the above symptoms.
3. Click and hold on the title bar of your RealPlayer Plus (the blue bar on the top of the Player).
4. Drag your RealPlayer to a new location on your desktop.

If you saw the video playing properly while you were dragging your RealPlayer Plus but the problems reappeared when you stopped dragging your RealPlayer Plus (or shortly after you stopped dragging it):

1. Select **View/Preferences...** from your menus.
2. Go to the **Performance** tab (see Performance Preferences on page 74).
3. Find **Video card compatability** at the bottom of the tab.
4. Deselect (uncheck) **Use optimized video display**.
5. Click **OK**.
6. Close RealPlayer and restart it (if you have StartCenter running, you will need to close this as well to fully restart RealPlayer. To close StartCenter, right-click on the StartCenter icon and select **Close StartCenter**. StartCenter will restart when you launch your Player again).
7. Attempt to play the video again.

If you still do not see the video playing properly, then other issues may be affecting your RealPlayer Plus. Contact Technical Support at **http://service.real.com** for access to the RealPlayer Plus Frequently Asked Questions (FAQ) and other up-to-date and technical information.

If you update or change your video driver or video card, you should reselect **Use optimized video display** to see if it works properly. If it does not, follow the instructions above again to solve the conflict.

Why is my video showing in my menus [Macintosh]?

If video appears in your menus while you are using RealPlayer, for instance when you open a module or drop-down menu over RealPlayer and rather than seeing the menu, you see video in the square, there are two solutions.

1. Move RealPlayer more toward the center of your screen or away from any menus.
2. Turn off Optimized video (described below). Turning off optimized video will slow the performance of RealPlayer.
   a. Select **View/Preferences...** from your menus.
   b. Go to the **Performance** tab (see Performance Preferences on page 74).
   c. Find **Video card compatability** at the bottom of the tab.
   d. Deselect (uncheck) **Use optimized video display**.
   e. Click **OK**.
   f. Close RealPlayer and restart it.
   g. Attempt to play the video again.

Audio Problems

Why is my audio playback poor?

Playback quality varies depending on available bandwidth and how the file you are playing was encoded. If the quality is garbled, choppy, or skipping, use the following guidelines to isolate and correct the problem.

If the quality was poor when **firstrun_plus.smi** or **Welcome.smi** file played at the end of the RealPlayer installation, you could have a sound card conflict. Try changing the settings on the **Performance** tab (see Performance Preferences on page 74).

If the quality was good when the **firstrun_plus.smi** or **Welcome.smi** file played at the end of the RealPlayer Plus installation, but is bad when you try to play a clip from a web, use the **View/Statistics** to check for lost packets (see your RealPlayer 7 Plus Help file for more information on the **Statistics** pane). If the packet loss is high, it may be due to a busy network. If this is the case you should also see the **net health** indicator blinking yellow or red on your Status bar. RealPlayer Plus users can select **PerfectPlay Mode** from the **Play** menu and try to play the clip again or connect to the site at a later time.

If the quality was good when the **firstrun_plus.smi** or **Welcome.smi** file played at the end of the RealPlayer installation, but sounds bad for every clip that you try to play on the Internet, complete the following steps.

If the playback quality is poor on every site:

1. Check the actual modem connection speed. This speed may be shown in the lighted display for external modems or through an information window if you have an internal modem (check the user manual for your modem). Sometimes service providers use a lower rate connection speed such as 28.8Kbps, so, even though you are dialing in to your ISP on a 56Kbps modem, you are only receiving data at 28.8Kbps.
2. If your computer seems sluggish during playback, try adjusting your playback performance. On the **Performance** tab of your Preferences, adjust the **Playback Performance** slider closer to **Lowest CPU usage**.
3. If audio on every site is scratchy, popping, or distorted, click **Settings...** in the **Sound card compatability** section of the **Performance** tab and choose **Disable 16-bit audio**.
4. If you are getting no audio or audio is playing back quickly (eveything sounds like a chipmunk), click **Settings...** in the **Sound card compatability** section of the **Performance** tab and choose **Disable custom sampling rate**.
5. If you are using an external modem with a Windows PC and the **Statistics** window shows minimal packet loss (10% or less), your system may have a problem with the speed at which packets are transferred between the modem and your computer. Try setting the port speed higher (at least twice the modem speed).
6. Contact RealNetworks' Technical Support at **http://service.real.com**

Why doesn't my RealPlayer Plus have a Volume Control?

In Compact Mode the Volume Slider changes to a pop-up control.

Click to pop-up the volume slider. When you click off of the slider, it will disappear again, but your setting will remain active.

The Mute button is available next to the volume control once you open it as described above.

Why can't I hear anything?

RealPlayer uses the *Wave interface* for Windows to get the sound out to your speaker. In some cases this may have been accidentally turned off by other programs or users.

The Wave interface Volume Control

In the Windows system tray (the area that shows you the date and time opposite the **Start** button) you may see a **Volume Control** (a small icon that looks like a speaker). Double-click on the icon to open the control *applet*.

Make sure that the Wave slider is not muted and is set above zero *and* that the **Master Control** is turned **On**.

Connection Problems

Why can't I play clips on my computer at work?

If you're on a local area network which is attached to the Internet, and are unable to play RealMedia files from remote web sites, it's possible that your company's firewall is preventing the stream from reaching you. Users can receive live and on-demand audio and video from the Internet without exposing their company's network to security risks.

If your computer is behind a firewall, please see RealNetworks' firewall page for more information: **http://service.real.com/firewall/**

Why does RealPlayer Plus use the wrong ISP?

When attempting to connect automatically to the Internet, RealPlayer Plus will select your default Internet connection. If you have more than one Internet Service Provider (ISP), RealPlayer Plus may be selecting the wrong one.

To change your default ISP in Windows95

1. Choose **Settings/Control Panel** from your **Start** button.
2. Double-click **Internet**.
3. Click the **Connection** tab. (Some browsers have this on the **Settings** tab.)
4. Change the **Dial-up Connection** setting to your preferred ISP.
5. Click **Apply**.

Note

Windows98 re-run the Internet Connection Wizard

To change your default ISP on Macintosh

1. Open the **Remote Access** control panel from the Apple Menu.
2. Select **Configurations.**
3. Choose the appropriate ISP.
4. Click **Make Active.**
5. Click **Done**.
6. Open the **TCP/IP** control panel from the Apple Menu.
7. Enter the appropriate information for the ISP.
8. Click **Done**.

Am I behind a Firewall? Do I need to use Proxy?

If you are behind a firewall you may consistently have one of the following problems:

You are accessing the Internet via an Internet Service Provider or a cable modem and have trouble connecting to RealAudio or RealVideo files on some or all Web sites but you can play local .RM or .RA files such as **thankyou.rm**, which was copied to your RealPlayer directory when RealPlayer was installed (`c:\Program Files\Real\RealPlayer` by default).

1. You are on a local area network which is attached to the Internet, and are unable to play RealAudio and RealVideo files from some or all remote Web sites but you can play local .RM or .RA files such as **thankyou.rm**, which was copied to your RealPlayer directory when RealPlayer was installed (`c:\Program Files\Real\RealPlayer` by default).
2. You receive one of the following errors **consistently** while trying to play content:

```
Error 18: Invalid socket error
Error 22: Requested server is not valid
Error 108 : Invalid Auto Transport Configuration Setup
```

If you are still unsure about whether or not you are behind a firewall, contact the Systems Administrator for your ISP or your company.

First attempt to Auto-configure your transport settings:

1. From the File Menu, Select **View/Preferences**.
2. Select the Transport tab.

3. Make sure the dot in front of **Automatically Select Most Efficient Transport** is selected.
4. Click **Auto-Configure**...
5. The **Auto Transport Configuration** box should come up.
6. Click **OK**.
7. As soon as the configuration is done, the message, `Auto Transport Configuration is complete` will appear in the box.
8. Click **OK**.

Attempt to play a clip on the Internet.

If this does not help, you may try to manually configure the Player for the firewall. The RealPlayer can be configured to receive RealAudio/RealVideo through several different transport methods in order to accommodate firewalls. These transport methods include:

- UDP on a single port
- TCP-only
- HTTP-only

The UDP option may offer better sound quality than TCP, so TCP-only may not be desirable. The RealPlayer also offers the ability to limit those inside a firewall to receiving UDP on only one port, which makes router configuration easier. **Please contact your System Administrator for the Port number they have configured for UDP transmission.**

To configure the RealPlayer to receive UDP through a single port

1. In your RealPlayer, select **Preferences** on the **View** menu.
2. Click the **Transport** tab.
3. Click **Use Specific UDP Port** and enter the UDP port number through which you want to receive the UDP streams.
4. Click **OK** to save your changes.

To configure the RealPlayer to use **only** TCP to stream audio or video (no UDP)

1. In your RealPlayer, select **Preferences** on the **View** menu.
2. Click the **Transport** tab.
3. Select **Use Specified Transports**.

4. Click **RTSP Settings...** and/or **PNA Settings...** Each transport is set separately.
5. Choose **Use TCP to Connect to Server**. Make sure that the **Attempt to Use TCP for All Content** box is the only one checked.
6. When you are finished, click **OK**.
7. Click **OK** in the Preferences window to save your changes.

To configure the RealPlayer to use receive content through HTTP-only

The HTTP-only option allows almost all Players behind a firewall to access RealAudio and RealVideo content.

1. In your RealPlayer, select **Preferences** from the **View** menu.
2. Click the **Transports** tab.
3. Select **Use Specified Transports**.
4. Click **RTSP Settings...** and/or **PNA Settings...** Each transport is set separately.
5. Click **Use HTTP Only** at the bottom of the dialog.
6. Click **OK**.
7. Click **OK** in the Preferences window to save your changes.

Additional Information

For more information on firewalls, please see the following URL: **http://www.real.com/firewall/**

In some cases you may need to set a proxy so your RealPlayer can receive information. In most cases, **Use my web browser's HTTP proxy** (see HTTP Options in Proxy Preferences on page 72) will work. However, depending on the firewall protecting your connection to the Internet this may not be enough. **Please contact the System Administrator for the correct address and Port numbers for your network. Incorrect information can cause your RealPlayer to appear to not work.**

Other Problems

How can I stop RealPlayer Plus from loading on start-up [Windows only]?

When RealPlayer Plus is installed it adds a shortcut icon in your system tray (the area that shows you the date and time opposite the **Start** button). The icon keeps RealPlayer in idle mode so that it is quickly available should you click on a file that requires RealPlayer and allows your Channel Headlines to automatically update while you maintain a connection to the Internet. Additionally this icon allows you to function on clips that are currently playing even if the player is minimized. To see these functions, right-click the RealPlayer icon in your system tray.

If you wish you remove the icon from your system tray:

1. Right-click the icon.
2. Select **Close StartCenter**. Closing StartCenter will only disable the feature for the current Windows session. StartCenter will load RealPlayer Plus the next time you reboot Windows.

To stop RealPlayer Plus from loading when you start Windows:

1. Select **View/Preferences...** from your RealPlayer menus.
2. Click the **General** tab.
3. Click **Settings...** in the StartCenter section.
4. Deselect (uncheck) **Enable StartCenter**.
5. Click **OK**.

What types of files can RealPlayer Plus play?

RealPlayer 7 Plus plays a wider variety of media both locally and over the Internet than previous versions. The chart below highlights most of the current file-types that can be played.

Only RealAudio, RealVideo, MP3, RealG2 with Flash, RealText, and RealPix are in the initial RealPlayer Plus download. As you attempt to play different content, RealPlayer Plus will expand its capability to fit your individual needs.

New plug-ins are being added all the time to expand RealPlayer Plus's abilities for you. If you click on a file that RealPlayer can't currently play, it will check with RealNetworks to see if a plug-in exists. If a plug-in exists, RealPlayer can

download and install it so you will be able to to play the file (see Upgrade Preferences on page 65 and AutoUpdate in your RealPlayer Help).

To see which components you currently have installed

1. Select **View/Preferences...**
2. Click the **Upgrade** tab.
3. To see the currently installed plug-ins, click **Settings...** in the **RealPlayer Plug-ins** section of the tab. You can remove a plug-in by highlighting it and clicking **Remove**.

RealPlayer Plus File-types

File Extension:	File-type:
RM, RA, RAM	RealAudio/RealVideo streamed content
RT	RealText streamed text formats
RP	RealPix streamed PNG, GIF and JPG ("j-peg") images
PNG, GIF, JPG	Stand alone PNG, JPG and GIF images and animated GIFs
MP3	MPEG Layer 3 audio format
SWF	RealFlash and Shockwave Flash animation
SMIL, SMI	SMIL files (see SMIL on page 52)
WAV, AU, AIFF	'Legacy' sound files—older but prevalent filetypes
MPG, MPEG	Standard MPEG Layer 1 video and Layer 2 audio formats
QT, MOV	Quicktime Movies (uncompressed)
AVI	Audio/Video Interleave—Microsoft video format
ASF	NetShow files (newer NetShow files may not play correctly)
MID, MIDI, RMI	'MIDI' sound files

KEYBOARD SHORTCUTS

Windows

Hot Key	Action	Hot Key	Action
CTRL+Left Arrow	Rewind (.5sec/keystroke)	CTRL+L	Open Location
CTRL+Right Arrow	Fast Forward (.5sec/keystroke)	CTRL+O	Open Local File
CTRL+SHIFT+ Left Arrow	Super Rewind (10sec/keystroke)		
CTRL+SHIFT+ Right Arrow	Super Fast Forward (10sec/keystroke)	CTRL+H	Open Search
CTRL+Up Arrow	Volume Up		
CTRL+Down Arrow	Volume Down	CTRL+N	Normal View
CTRL+P	Play/Pause	CTRL+M	Compact View
CTRL+S	Stop	CTRL+A	Add to Favorites
CTRL+R	Record	CTRL+SHIFT+A	Save Current Place
PgUp	Previous Clip		
PgDown	Next Clip	F1	Help Contents
		ALT+F4	Exit Program

CTRL= Control key

ALT = Alt Key

SHIFT = Left or Right Shift Key

"+" = use the listed keys at the same time. Example: "CTRL+A" means hold down the Control key and the letter "A" at the same time.

Additional Information

The Equalizer is also keyboard accessible. The Tab key changes fields while Up/Down Arrows adjust settings.

Macintosh

Hot Key	Action	Hot Key	Action
CMD+Left Arrow	Rewind (.5sec/keystroke)	CMD+L	Open Location
CMD+Right Arrow	Fast Forward (.5sec/keystroke)	CMD+O	Open Local File
CMD+SHIFT+Left Arrow	Super Rewind (10sec/keystroke)		
CMD+SHIFT+ Right Arrow	Super Fast Forward (10sec/keystroke)	CMD+H	Open Search
CMD+Up Arrow	Volume Up		
CMD+Down Arrow	Volume Down	CMD+N	Normal View
CMD+P	Play/Pause	CMD+M	Compact View
CMD+S	Stop	CMD+A	Add to Favorites
CMD+R	Record	CMD+SHIFT+A	Save Current Place
CMD+ [	Previous Clip		
CMD+]	Next Clip	F1	Help Contents
		CMD+Q	Exit Program

CMD= Command or “Apple” key

SHIFT = Left or Right Shift Key

“+” = use the listed keys at the same time. For instance “CMD+A” directs you to hold down the Command key and press the letter “A” on you keyboard at the same time.

Additional Information

The Equalizer is also keyboard accessible. The Tab key changes fields while Up/Down Arrows adjust settings.

REALNETWORKS PRIVACY STATEMENTS

RealNetworks Consumer Software Privacy Statement

Warning

The following information was published: **January 4, 2000** for updates to this statement please see http://www.realnetworks.com/company/privacy/software.html

RealNetworks is committed to being a leader in providing our customers with clear, comprehensive information regarding the personally identifiable information gathered through the use of our consumer software products. It is our mission to protect and respect your private information. We have developed this consumer software privacy statement to ensure that when you use one of RealNetworks' products, you will know:

- What personally identifiable information, if any, we gather and track when you use the product
- What we do with any personally identifiable information we gather and track when you use the product
- Whether any of your personally identifiable information will be shared with any third party
- How our consumer products communicate with RealNetworks

For information about RealNetworks' Web site privacy policy, please visit: **http://www.realnetworks.com/company/privacy/index.html**

RealNetworks Consumer Software and Your Privacy

There are times when we may request that you give us permission to collect and store your personal information so that we can improve our products to better meet your needs, and customize your experiences according to your individual preferences. Whenever you consent to give us personal information, you can be confident that we treat your personal information confidentially

and we will never sell, rent, or disclose that information to outside parties without your consent.

RealNetworks is constantly innovating and implementing new features in its software products to provide the best possible user experience. Because our software is constantly changing and improving, this site will continue to evolve as our software evolves. Please visit this site when we issue new versions and releases of our products to ensure that you have the most up to date information. Regardless of how this Privacy Statement evolves with our software, RealNetworks will never gather/track your personally identifiable information without your consent.

RealNetworks will be adding additional consumer products to this privacy statement as we move forward with our consumer products privacy initiative. This statement currently applies to the products described below.

What Information We Gather and Track

To provide a great consumer experience and to operate effectively, RealNetworks' software products occasionally send information to servers at RealNetworks. With the exception of product download, purchase and registration, and RealPlayer Plus/RealJukebox Plus software updates, each of these information exchanges occurs anonymously. This anonymous information is not associated with personally identifiable user information such as name and e-mail unless you have provided consent.

RealPlayer 7 Customer Communications

RealPlayer 7 allows you to play real-time (streaming) audio, video and multimedia.

1. **Download**. If you decide to download the free RealPlayer 7 Basic from the Real.com Web site, RealNetworks requests your name, e-mail, and relevant system information. RealNetworks uses the information for aggregate statistical analysis, to keep track of the number of unique downloads, and to inform you of new products and upgrades with your consent.
2. **Purchase**. If you decide to purchase RealPlayer Plus from the Real.com Web site, RealNetworks collects standard payment and billing information for use in processing the payment transaction. Your credit card number is submitted to the credit institution for normal, routine processing. RealNetworks does not share credit history or credit card

information with other companies or third parties, unless compelled by law or court order to do so.

3. **Electronic Registration**. During electronic registration, you can optionally send information about your location, name, e-mail address and connection speed. This information is sent with relevant system and player version information. The name and e-mail are used in the event that you elect to receive updates and special offers via e-mail from RealNetworks. All other information is used for aggregate statistical analysis only. No unique product ID is sent during this communication (the Globally Unique Identifier – GUID has been disabled for electronic registration so it cannot be used to identify you). You are not required to fill out an electronic registration. A registration reminder will appear each time you launch RealPlayer (simply select Cancel if you do not wish to register them).

4. **Channel and Live Station Checks**. RealPlayer periodically checks to see if there are new Live Stations or Channel headlines available for your player. At this time, RealPlayer sends anonymous information such as your player version, connection speed (for example, so we can offer broadband users high-bandwidth content), Zip code so that we can offer local content, and your language preference. For Channel headline updates or when you add or remove channels, we need to send temporary data on the Channels you have installed. Your lists of Channels and Live Stations are not stored at RealNetworks, and your Channels can not be associated with you individually. The Channels and Live Stations updating features can be disabled by selecting the **View** menu in RealPlayer 7, then selecting **Preferences**, and clicking on the **Content** tab where you can change the **Channels and Live Stations Settings**.

5. **RealPlayer Messages**. If you have signed up for RealPlayer Messages (News and Entertainment Flashes and Real.com Product Flashes), RealPlayer periodically checks to see if there are any new messages. During this check, RealPlayer anonymously sends information such as the message categories that you have signed up to receive along with information about messages you have already viewed to ensure that only new messages are sent. We may also send your preferred language and relevant system information. The messages you have received cannot be associated with you individually. The RealPlayer Messages feature can be disabled in Preferences. You can access your Preferences by selecting the View menu item in RealPlayer 7, and then choosing **Preferences**.

6. **Search**. When you perform a search for audio or video content using RealPlayer, RealPlayer anonymously sends the search term, and relevant system information. No unique identifier (GUID) is sent during this request. Your search terms cannot be associated with you individually.
7. **Technical Support**. If an error occurs when you are using RealPlayer 7, a dialog box will appear describing the error. When you select the **Tell Me More...** button on the dialog box to obtain more information about the problem, RealPlayer 7 anonymously sends relevant system configuration information to help RealNetworks technical support diagnose and resolve the problem. This feature can be disabled by selecting the **View** menu in RealPlayer 7, then selecting **Preferences**, and clicking on the **Support** tab where you can uncheck the selection for **Send support info**.
8. **Software Update**. RealPlayer is designed to check for the availability of software updates to ensure that you have the latest product improvements. When RealPlayer checks for the availability of a software update, basic information about the product version and installed components are sent anonymously to RealNetworks to determine whether new free software is available for download. For RealPlayer 7 Plus, the software's serial number is also sent during software update. The serial number is used to determine whether the user has an active subscription for updates, and whether the software is an authorized copy. We will not use the serial number to personally identify our customers. This feature can be disabled for 30-day intervals by selecting the **View** menu in RealPlayer 7, then selecting **Preferences**, and clicking on the **Upgrade** tab where you can click on the button that reads, **Turn off notification for 30 days**.

RealPlayer 7 Communications with Streaming Media Servers

RealPlayer 7 must communicate with streaming media servers in order to receive the content sent from the servers. Those servers are typically owned and operated by third-party content providers, but these servers might also reside at RealNetworks if we are providing hosting services for a content provider, or are providing content ourselves. This section describes the information transmitted in those communications.

- **Playing content**. Whenever you play a streaming media clip, RealPlayer must send certain anonymous information to content broadcasters so that they can send the clip data stream to your computer. This data

includes your connection speed, player version, language preference and zip code. This communication cannot be disabled; however, you may opt to not identify your zip code during electronic registration or if you have already submitted your zip code, you can re-register the product from the Help menu and omit this field to delete it from your product and RealNetworks' records.

- **GUIDs**. A Globally Unique Identifier (GUID) is an alphanumeric identifier in RealPlayer 7 that is disabled by default and is only enabled if you turn on the feature in Preferences. A GUID is randomly generated by RealPlayer 7 during installation. RealNetworks uses publicly documented standards to create a GUID. A GUID is used to indicate a unique installation of a product, and is found in many popular software applications.

  RealPlayer 7 has GUIDs disabled by default (set to all zeroes so that it is not unique). In order for your RealPlayer 7 to transmit a unique GUID at all, you must turn on this feature in Preferences (select **View**, then click on **Preferences**, and then select the **Support** tab, where you can enable or disable the sending of the RealPlayer GUID). Some content providers require that you enable your GUID in order to play their content (you will receive an error from the RealServer if a GUID is required to access the content; this error will have a **Tell Me More...** button that explains how to enable GUIDs). This is typically because their content is limited-access (such as pay-per-view or for registered members only). If you enable the GUID, it will be sent to all streaming media servers when you play a clip or broadcast. You can turn your GUID back off at any time in Preferences.

  The GUID can be used by the content provider for authentication, statistical purposes, or to personalize your experience.

  Because the RealPlayer 7 GUID is not sent to RealNetworks as part of the download or electronic registration process, RealNetworks cannot, and will not, associate the GUID with any of your personally identifiable information.

  For more information about enabling or disabling GUIDs with streaming media servers, please go click **Tell me more...** in the Supply info to content providers section of your Support Preferences (see Support Preferences on page 76).

- **Connection Quality Information**. By default, RealPlayer sends anonymous connection quality data to broadcast servers to indicate the

quality and bandwidth of the stream that you received while playing a clip. This helps the content provider understand the quality of the streaming media service that they are providing to you. This feature can be disabled by selecting the **View** menu in RealPlayer 7, then selecting **Preferences**, and clicking on the **Support** tab where you can uncheck the selection for **Supply connection quality-data to RealServers**.

- **Cookies**. RealPlayer cookies act very much like Web browser cookies. A "cookie" is a small text file that stores information. If RealPlayer cookies are enabled, content providers can copy cookies to your hard disk when you play their streaming media content. They can also read the cookies they previously copied to your hard disk, including Web browser cookies they previously placed. RealPlayer and Web browser cookies can help identify you or your preferences when you play content from the broadcaster that placed the cookie. Cookies can only store information that you provide or the actions that you take while playing or viewing content provided by the broadcaster who placed the cookie (for example, the links that you click on or the ads that you see on the broadcaster's Web site). Allowing a broadcaster to create a cookie does not give them access to the rest of your computer. Cookie information can only be returned to the content provider that originally placed the cookie.

  You may disable RealPlayer cookies by selecting the **View** menu in RealPlayer 7, then selecting **Preferences**, and clicking on the **Support** tab where you can uncheck the selection for **Enable Cookies**.

  If you play content broadcasted or hosted by RealNetworks (such as the Take5 showcase in RealPlayer), RealNetworks may send cookies to your computer and read RealPlayer and Web browser cookies that had been sent by us in the past. However, we do not require that you accept cookies. For more information click **Tell me more...** in the Cookies section of your Support Preferences (see Support Preferences on page 76).

RealJukebox Version 1.0 Customer Communications

(Applicable after November 5, 1999, or with privacy enhancement patch. Download the the patch at:

http://rjb-dl.real.com/realjukeboxsound/getmusic/update/autoupgrade.rmp)

RealJukebox is an application that allows users to download, play, record and manage music either online or using CDs.

1. **Download**. If you decide to download the free RealJukebox Basic from the Real.com Web site, RealNetworks requests your name, e-mail and relevant system information. RealNetworks uses the information for aggregate statistical analysis, to keep track of the number of unique downloads, and to inform you of new products and upgrades with your consent.
2. **Purchase**. If you decide to purchase RealJukebox Plus from the Real.com Web site, RealNetworks collects standard payment and billing information for use in processing the payment transaction. Your credit card number is submitted to the credit institution for normal, routine processing. RealNetworks does not share credit history or credit card information with other companies or third parties, unless compelled by law or court order to do so.
3. **Electronic Registration**. During electronic registration, you can optionally send information about your location, name email address, and connection speed. This information is sent with relevant system and player version information. The name and email are used in the event that you elect to receive updates and special offers via e-mail from RealNetworks. The other information is used for aggregate statistical analysis only. No unique product ID (Globally Unique Identifier - GUID) is sent during this communication. You are not required to fill out an electronic registration. A registration reminder will appear each time you launch RealJukebox (simply delete your e-mail address in the registration dialog if you do not wish to register).
4. **CD Lookup**. The CD Lookup information allows you to automatically obtain detailed information (Artist, song titles, genre) for the CDs you use with RealJukebox. During a request for CD information RealJukebox anonymously sends the Table of Contents Code from the CD to a database service in order to look up the CD information. RealNetworks does not send any unique RealJukebox ID during this exchange. RealNetworks does not store any personally identifiable information about the songs or albums you record or download with RealJukebox. This feature can be disabled by selecting the **Options** menu in RealJukebox, then selecting **Preferences**, and clicking on the **Internet Settings** tab where you can uncheck the selection for **Get CD Info from the Internet**. However, you will not be able to automatically obtain the detailed CD information if the feature is disabled.

5. **Get Music Feature**. RealJukebox periodically checks to see if there is new, interesting music available for you to download, using the **Get Music** service. During this Get Music check, RealJukebox anonymously sends information about the RealJukebox version you are running. RealNetworks does not gather any personally identifiable information about any music you download using this feature. Automatic Updating of Get Music can be disabled by selecting the **Options** menu in RealJukebox, then selecting **Preferences**, and clicking on the **Internet Settings** tab where you can uncheck the selection for **Automatically update the Get Music page when accessing the Internet**.

6. **Technical Support**. If an error occurs when you are using RealJukebox, a dialog box will appear describing the error. When you select the **More Info** button on the dialog box to obtain more information about the problem, RealJukebox anonymously sends relevant system configuration information to help RealNetworks technical support diagnose and resolve the problem. This feature can be disabled by selecting the **Options** menu in RealJukebox, then selecting **Preferences**, and clicking on the **Internet Settings** tab where you can uncheck the selection for **Send configuration info when connecting to Technical Support**.

7. **Software Updates**. RealJukebox is designed to check for the availability of software updates to ensure that you have the latest product improvements. When RealJukebox checks for the availability of a software update, basic information about the product version and installed components are anonymously sent to RealNetworks to determine whether new free software is available for download. For RealJukebox Plus, the software's serial number is also sent during software update. The serial number is used to determine whether the user has an active subscription for updates, and whether the software is an authorized copy. We will not use the serial number to personally identify our customers. This feature can be disabled for 30-day intervals by selecting the **Options** menu in RealJukebox, then selecting **Preferences** and clicking on the **Update** tab where you can click on the button that reads, **Turn off notification for 30 days**.

What We Do With the Information We Gather and Track

Much of the data that is sent by RealPlayer or RealJukebox is temporary data that is required only to enable a feature or service to be performed over the

Internet, and is discarded after its intended use is served. The information that we do store and track, we use in three ways:

1. To gather anonymous statistical data to help us better understand the quality of our products and services and how our products are used.
2. To provide you with information about products, services, news, and interesting content.
3. To provide you with a customized experience based on your preferences.

Contacting Us about Privacy

If you have any questions about this privacy statement, the practices of our software or Web sites, you may contact:

Privacy Policy Group
RealNetworks, Inc.
2601 Elliott Avenue
Seattle, WA 98121
privacy@real.com

RealNetworks Membership in the TRUSTe Program

Warning

The following information was published: **January 4, 2000.** For updates to this statement please see http://www.realnetworks.com/company/privacy/index.html

This Privacy Statement verifies that RealNetworks is a participant in the TRUSTe program and is in compliance with TRUSTe privacy principles. This statement discloses the privacy practices for all RealNetworks Web sites including: REAL.COM, REALNETWORKS.COM, REALSTORE.COM, REALGUIDE.COM, LIVECONCERTS.COM, MUSICNET.COM, FILM.COM, and WEBACTIVE.COM.

TRUSTe is an independent, non-profit organization whose mission is to build users' trust and confidence in the Internet by promoting the principles of fair information practices. Because RealNetworks is committed to respecting and protecting your privacy, we have agreed to disclose our information practices and have our privacy practices reviewed and audited for compliance by a third party auditor at the direction of TRUSTe. These TRUSTe principles apply to

personally identifiable information gathered on RealNetworks' Web site. This privacy statement will inform all visitors to our Web site regarding:

- What personally identifiable information we gather/track about you on this Web site
- What we do with personally identifiable information we gather/track on this Web site
- Whether any of your personally identifiable information will be shared with any third party

Questions regarding this statement should be directed to the RealNetworks site coordinator at **privacy@real.com**, or TRUSTe for clarification. To return to the site, please use the **Back** button on your browser.

To remove your email from our mailing list, go to:
http://ml.real.com/ml/ml.html.

RealNetworks General Privacy Principles

RealNetworks and Your Privacy

RealNetworks is committed to protecting your personal information and respecting your privacy. Our goal is to give you as much control and information as possible regarding your personal information and the use we make of it in the course of our business. We want to be a leader in providing comprehensive privacy information to our customers.

In general, you can visit RealNetworks on the Web without telling us who you are or revealing any information about yourself.

RealNetworks will never sell, rent or disclose your personally identifiable information to outside parties without your consent unless compelled by law or court order to do so. With your permission, RealNetworks may send you e-mail regarding our new products, upgrades, or select third party products. In any case, we do not disclose your personally identifiable information to such third parties. Please see below regarding how our privacy policy applies when you purchase third party products on our Web site.

RealNetworks Web Site Privacy Statement

What Information We Gather and Track

There are times when we may need to collect information from you through our Web site. This generally involves filling out forms so you can download or

order a RealNetworks or third party product from our Web site. When you download the RealPlayer and other products we require you to fill out a form with your name and email address. During this process, you are given the opportunity to decline further e-mail notification of important news and events. In addition, you can remove yourself from the mailing list at any time by going to the following URL: **http://ml.real.com/ml/ml.html**

When you submit an order on-line, your credit card number is submitted to the credit institution for normal, routine processing. RealNetworks does not share credit history or credit card information with other companies or third parties, unless compelled by law or court order to do so.

What We Do With the Information We Gather and Track

The personally identifiable information gathered from the forms you fill out on our Web site is used in one of three ways:

1. to provide you with information about products, services, news and events;
2. to allow you to purchase and download products; and
3. to gather broad demographic information about user trends.

RealNetworks uses various methods to collect certain other kinds of information, including:

- Cookies
- Referers
- IP addresses
- System information

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RealNetworks' software may use Globally Unique Identifiers (GUIDs) to notify us of the installation of one of RealNetworks' products. For more information, please see RealNetworks Consumer Products Privacy Statement above or at **http://www.realnetworks.com/company/privacy/software.html**.

A *cookie* is an element of data that a Web site like real.com can send to your browser, which may then store it on your system. It can be used to provide you with a tailored user experience. Some RealNetworks pages use cookies, and we

have recently implemented cookies into RealPlayer (Please see our Consumer Software Privacy Policy). Cookies are used to better personalize the content, banners and promotions that you and other users will see. We may use the information to research and understand how our users' habits in the aggregate are similar or different so that we can enhance your experience on RealNetworks' sites and with our products. With your consent, cookies can optionally store information from forms that you fill out on our site so that next time you visit, you do not have to re-enter this information. For example, this would allow you to enter your zip code so that next time you visit, you can automatically see local content from your area. We treat any personally identifiable information with the same confidentiality as when you a purchase something on our Web site. You can set your browser to notify you when you receive a cookie, giving you the chance to decide whether or not to accept it. RealNetworks does not require that you accept cookies.

A *referer* is the information passed along by a web browser that references the Web URL you linked from, and is automatically gathered by our Web server. This information is used by RealNetworks to identify broad demographic trends that may be used to provide information tailored to your interests. You will not be personally identified from this information.

IP addresses are used by your computer every time you are connected to the Internet. Your IP address is a number that is used by computers on the network to identify your computer so that data (such as the Web pages you request) can be sent to you. They are automatically gathered by our Web server. RealNetworks will not use your IP address to attempt to identify your personal information.

System information we gather includes time, type of Web browser being used, the operating system/platform, and CPU speed. This information is sent automatically by your Web browser when you are connected to a Web site and is used by RealNetworks only for broad demographic statistics. This information is used by RealNetworks in identifying broad demographic trends and may be used to provide information appropriate for your computer system. You will not be personally identified from this information.

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RealNetworks owns and maintains a variety of Web sites as listed above. Each of these sites may have their own mailing lists or other methods of contacting customers. All of the sites follow this privacy statement for gathering information or sharing personally identifiable information with third parties. A list of the sites and the URL you can use for removing yourself from any mailing lists they may maintain is available at **http://ml.real.com/ml/ml.html**.

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Contacting Us about Privacy

If you have any questions about this privacy statement, the practices of our software or Web sites, you may contact:

Privacy Policy Group
RealNetworks, Inc.
2601 Elliott Avenue
Seattle, WA 98121
privacy@real.com

GLOSSARY

The following pages contain a list of terms defined specifically for RealPlayer 7 Plus and RealSystem G2. While some of these concepts may have broader meanings and implications, the definitions in this Glossary relate directly to your use of the RealPlayer 7 Plus rather than the world or Internet at large.

A

Accessory
A part of the RealPlayer Plus that is not necessary to its main function, but that enhances your experience during playback (such as the Equalizer).

Applet
A small application or program with limited ability. Usually this is a helper program or tool such as the Windows Control Panel.

Audio Analyzer
A tool that analyzes the audio coming into RealPlayer and displays it visually on the Display Panel.

B

background
When a process is set to run "in the background" no visual cue will alert you to the process. During a background process, you can continue to work normally.

Bandwidth
The amount of data that can be sent to your computer over a short time, usually expressed as kilobits per second (Kbps). The higher the bandwidth, the faster you receive data—very much like using a larger garden hose to get more water faster. Sometimes this is shortened to "band" as in the "16-band bar-graph Equalizer". In this case, the range of sound that is measurable is broken into equal portions, or bands, of sound to be displayed.

Bar
A portion of the RealPlayer Plus interface that can be rearranged vertically and is only a single line tall (such as the Clip Info bar).

Bit(s)
A single smallest piece of information. Often used synonymously for *packets* when talking about the Internet even though they are not actually the same thing. Packets are actually made up of bits, bits being a lower level of

structure just as atoms are what make up bricks. (See also *packets*.)

Browser
A short term for Internet browser (for example, Netscape, Opera, or Internet Explorer).

Buffered
Data that is collected but held back rather than made immediately available. Similar to a translator on the news listening to a whole statement before telling you what the speaker has said, rather than trying to give you a less accurate, halting, word-by-word translation.

C

Cache
A temporary storage of frequently used files on your computer that allow RealPlayer to load a presentation more quickly since those files will not have to be streamed from the Internet each time you play the clip.

Channel
Represented by an icon in the My Channels tab, it is a quick link to a service (news, sports, etc.). Channels also update headlines from their associated services on a regular basis when connected to the Internet.

Channels tab (My Channels)
The portion of the Content Panel that displays Channels.

Clip
Any media that can play within RealPlayer.

Clip Info bar
Portion of RealPlayer Plus that displays Title, Author, Copyright information about the active clip if any is available.

Compiled
Term describing a file when the raw information, or source-code, has been organized into a usable format for your desktop (eg., DLL, EXE, and COM file-types).

Content Panel
Opposite the Display Panel. My Channels, Live Stations and My Favorites tabs are displayed on this panel.

Control bar
The portion of the RealPlayer that contains the controls that act on the active clip (such as Play, Pause, Stop, etc.) as well as the position slider, the Equalizer, and any plug-ins or RealPlayer Add-ins (RPA's).

D

Datatype
Determined by the program that creates the media you are viewing and usually distinguished by the extension on the end of the file (eg., AVI, WAV, RM, RMA, etc.). See also Extension.

DirectX
A compilation of interpreters created by Microsoft that allow sound and video to work faster in Windows95 or later and Windows NT 4 or later.

Display Panel
Opposite the Content Panel. Used to display visual elements of a clip as well as the Audio Analyzer and controls for Zoom, Video, Mute, and Volume.

E

Electronic certificates
Electronic certificates are digital fingerprints. Each file carries a special code identifying it as officially sanctioned and approved by RealNetworks to work with your RealPlayer Plus.

Encode
The process of converting media (sound, video, etc.) so it can be streamed to and played by RealPlayer Plus.

Equalizer
See graphic equalizer.

Extension
The letters after the period in a filename. For example, .ram would be the extension of thankyou.ram. While often this is realted to the datatype of the file, this is not always the case. See also Datatype.

F

Favorite
A quick link to reach conent on the Internet, similar to the station buttons on a car or home stereo.

Firewall
Security devices used to protect companies from unauthorized access to their servers. A firewall ensures that all communication between an organization's network and the Internet conform to the organization's security policies, using either proxy services or packet filtering.

G

Graphic equalizer
Divides the sound input into smaller ranges of tones. This lets you adjust each range of sound to fit your preferences rather than just the high or low frequencies, as typical treble and bass buttons do.

Grab bar
The double bar on the side of any bar that allows you to drag it, changing the top to bottom order you see in your Player.

H

HTTP
Hyper Text Transport Protocol. A standard language for pushing information across the Internet and a good fall-back to use, though with reduced quality, when your company employs a firewall that blocks other protocols.

I

IP
Internet Protocol. Part of the TCP/IP group of information languages (see TCP/IP).

IP address
Internet address of another computer in number format (for example, 172.16.3.221).

ISP
Internet Service Provider. The service you use to connect to the Internet.

L

Live Stations
The portion of the Content Panel that displays Stations.

Location bar
Portion of RealPlayer Plus that shows the URL, or Internet address, of the currently playing clip and allows navigation between recently played clips.

M

Media
A general term that includes any visual, audio, or text transmission.

Message bar
Portion of RealPlayer Plus that alerts you that you have received a Flash from the Real.com Message Service. Appears at the bottom of your RealPlayer.

Mode
A specific instance or view of a single tool. For instance, Bar Graph mode Analyzer versus Wave mode.

Multicast
Used for broadcasting large events over the Internet. Allows a single computer to create the content (concert, film, etc.) and many computers to play the same single stream simultaneously.

Multi-clip
Any sequential string of clips RealPlayer Plus plays from a single file.

Multi-instance
Multiple RealPlayers running at the same time as when viewing Real.com Take5 shows.

My Channels tab (Channels tab)
The portion of the Content Panel that displays Channels.

My Favorites
The portion of the Content Panel that displays Favorites.

P

Packet
A single package of data sent to a computer. Similar to a single brick in a building. (See also *bits*.)

Panel
Any one of the separate areas of RealPlayer Plus. Each is separated by lines on the top and bottom. Bars may be dragged above and below panels to create a different visual order by using the grab bar, the double bar on the side that allows you to change the top to bottom order you see in your Player.

Peak
The highest level for a particular sound at a given point in time. Used when viewing the Wave mode Analyzer.

Playlist bar
Portion of RealPlayer Plus that displays the name of the current clip within a multi-clip (see multi-clip).

Plug-in
A component of the RealPlayer Plus that extends its ability.

PNM or PNA
Progressive Networks Media (Audio). The previous standard protocol for streaming media to your RealPlayer Plus.

Protocol
Language used by computers to talk to each other or to their own hardware. In the case of two computers, they must speak the same language to understand each other. The standard Internet protocol is TCP/IP (see TCP/IP). Synonymous with *transport*.

Proxy
Used in conjunction with a firewall, a proxy or proxy service is a server that acts as an intermediary to first determine if a requested connection between a computer on the internal network and one on the outside is permitted. If the connection is authorized, the firewall sets up the necessary communication links between the two computers. The firewall can then monitor the communication between the two networks and suppress any unauthorized activity.

R

RPA
RealPlayer Add-in. Authorized third-party program additions that give you access to other media or functions.

RealMedia
Any media that is specifically created to be streamed from RealServer to your computer.

RTSP
Real Time Streaming Protocol. The newest protocol used to stream media to your RealPlayer Plus over the Internet.

S

Sampling rate
How many times a sample of sound is taken over a specific period of time.

Search bar
Portion of RealPlayer Plus that is used to search for content on the Web similar to a search engine on the Web.

Server
Any machine or program that is "serving" information to another machine or program.

Status bar
Portion of RealPlayer Plus that displays connection and other information about the current clip.

Streaming
When a large media file (audio, video, etc.) is broken into smaller pieces so it can viewed or heard immediately rather than forcing the audience to have to wait for the whole file to be downloaded first.

T

TCP
Transmission Control Protocol. Part of the TCP/IP group of information languages. More reliable than UDP, but often slower.

TCP/IP
Transmission Control Protocol/Internet Protocol. Standard protocol used by the Internet to send information back and forth.

Transport
How data is broken up and sent to your computer over the Internet or your company's intranet or network. Usually used in conjuction with or instead of *protocol*. Most machines will only recognize a single type of transport, though this is not always the case.

Trough
The lowest level for a particular sound at a given point in time. Used when viewing the Wave mode Analyzer.

U

UDP
User Datagram Protocol. Part of the TCP/IP group of information languages. Similar to, but less reliable than, TCP, though often faster.

URL
Uniform Resource Locator. This is the complete address that tells your browser and your RealPlayer Plus where to get the information to show or play (for example: HTTP//, RTSP //, PNM//, etc.).

V

Video controls
Controls for Contrast, Brightness, Color Level, Tint, and Sharpness for visual presentations. Located beneath the Zoom control on the Display Panel. Not all visual presentations support Video controls. They will only be available if the clip supports the controls.

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